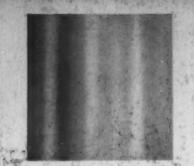


How can Bright Colors be used in large amounts?





Colors for hard smooth effect . . . for soft shaggy texture?

# American BABRIGS

Number Nine 1949



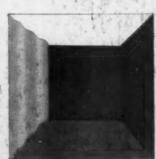
Fon Tollars per Year





How can color make objects visible or unoblausive?





How can color convey a feeling of rest and repose?





Form or color--which creates effect of solidity?





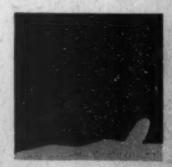
What color lesson does the elephant leach us?





Large or small objects -- what color should be used?





Hose can color conjure up specific moods?



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American Fabrics is published quarterly by Reporter Publications, Incorporated, who are the publishers of Men's Reporter News Weekly, Neckwear Reporter, Canadian Reporter, Canadian Women's Reporter, National Gold Book Directory, and the British Gold Book.

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AMERICAN FABRICS, Empire State Bldg., New York 1, New York

Number Nine



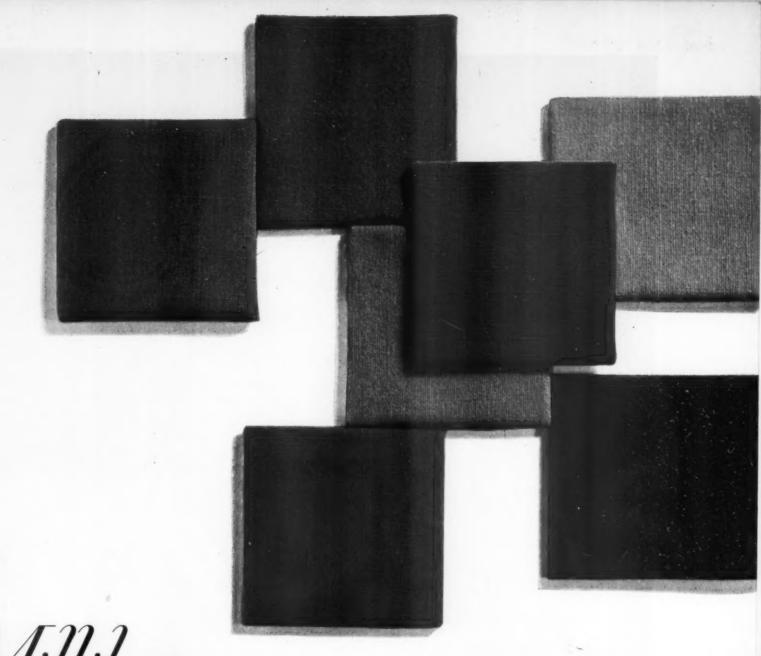
1st Quarter 1949

Fashion Begins with the Fabric

#### American Fabrics

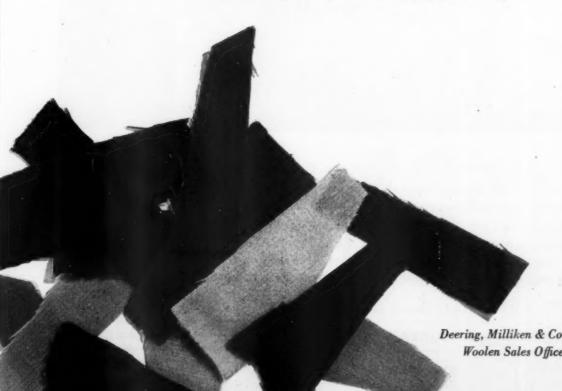
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Illusions, emotions and the practical applications involved in skillful use of color and its merchandising effect in fields served by the textile and allied industries. Especially written for American Fabrics by Color Consultant Howard Ketcham	The results of the efforts of a group of well-known contemporary American and European artists, who have been designing especially for the fabric field, are an Illustrated Article		
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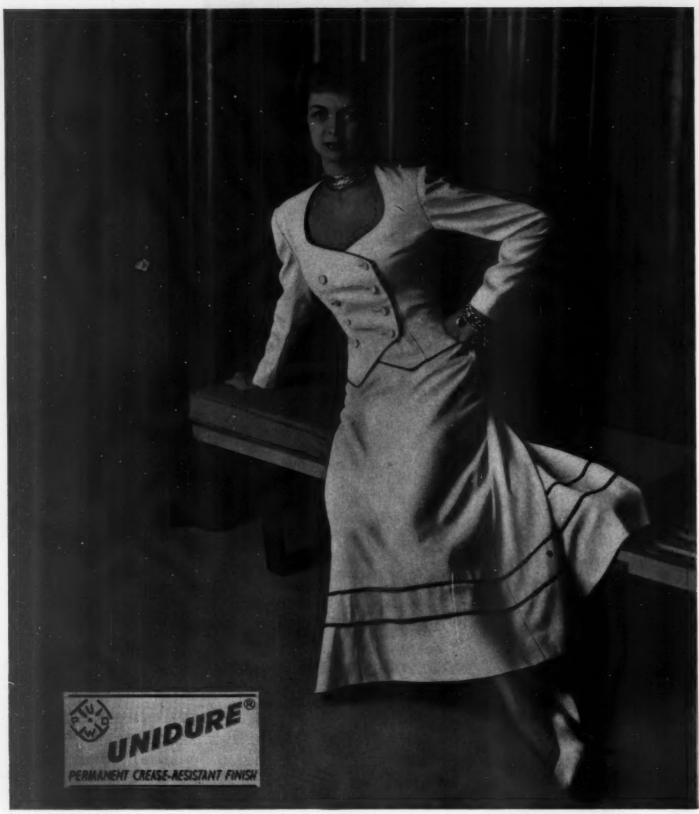


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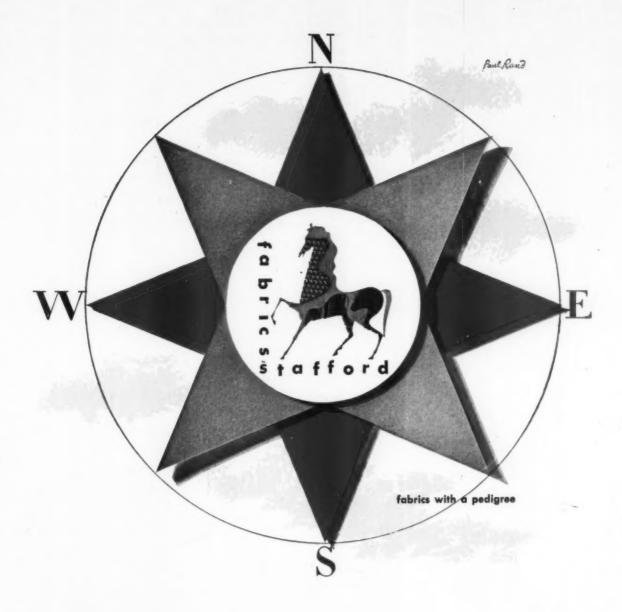
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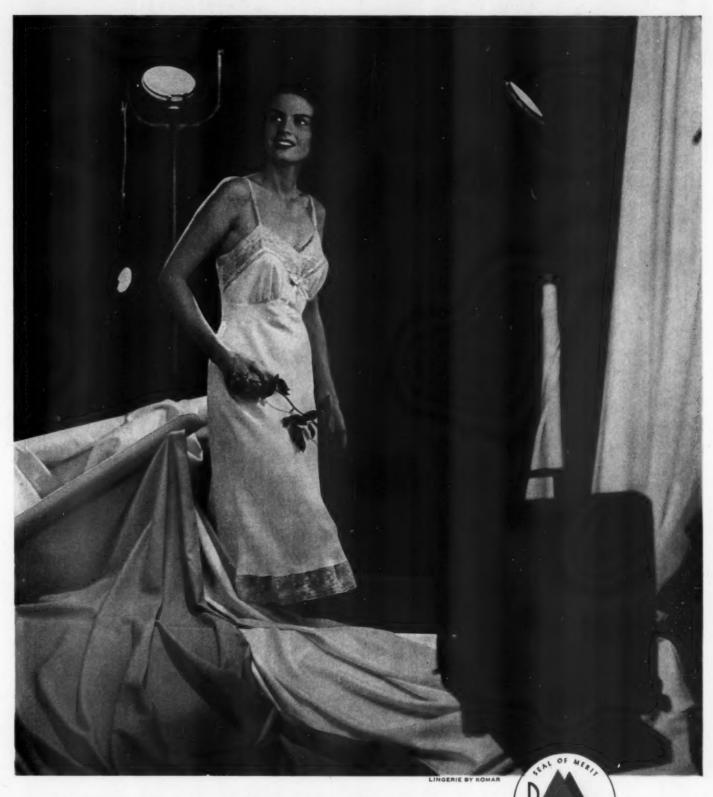
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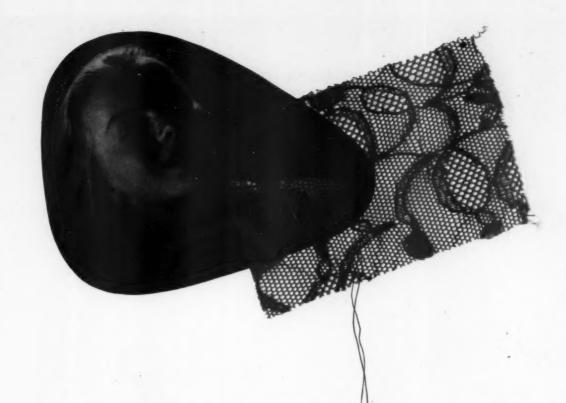
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Wesley Simpson's underwater ballet...starring his Mermaid Print on Rustler, the cotton taffeta, in a Cole of California maillot. In the supporting cast, matching shoes by Joyce.

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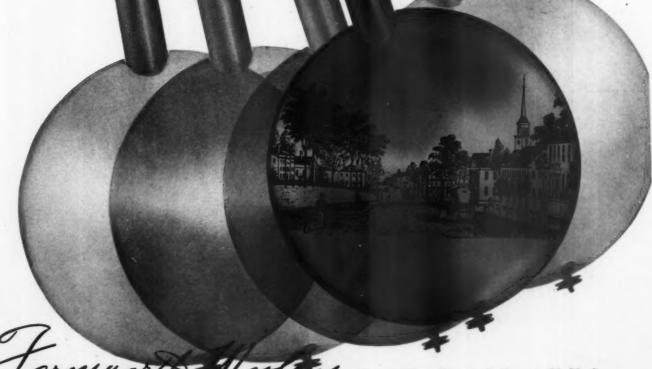
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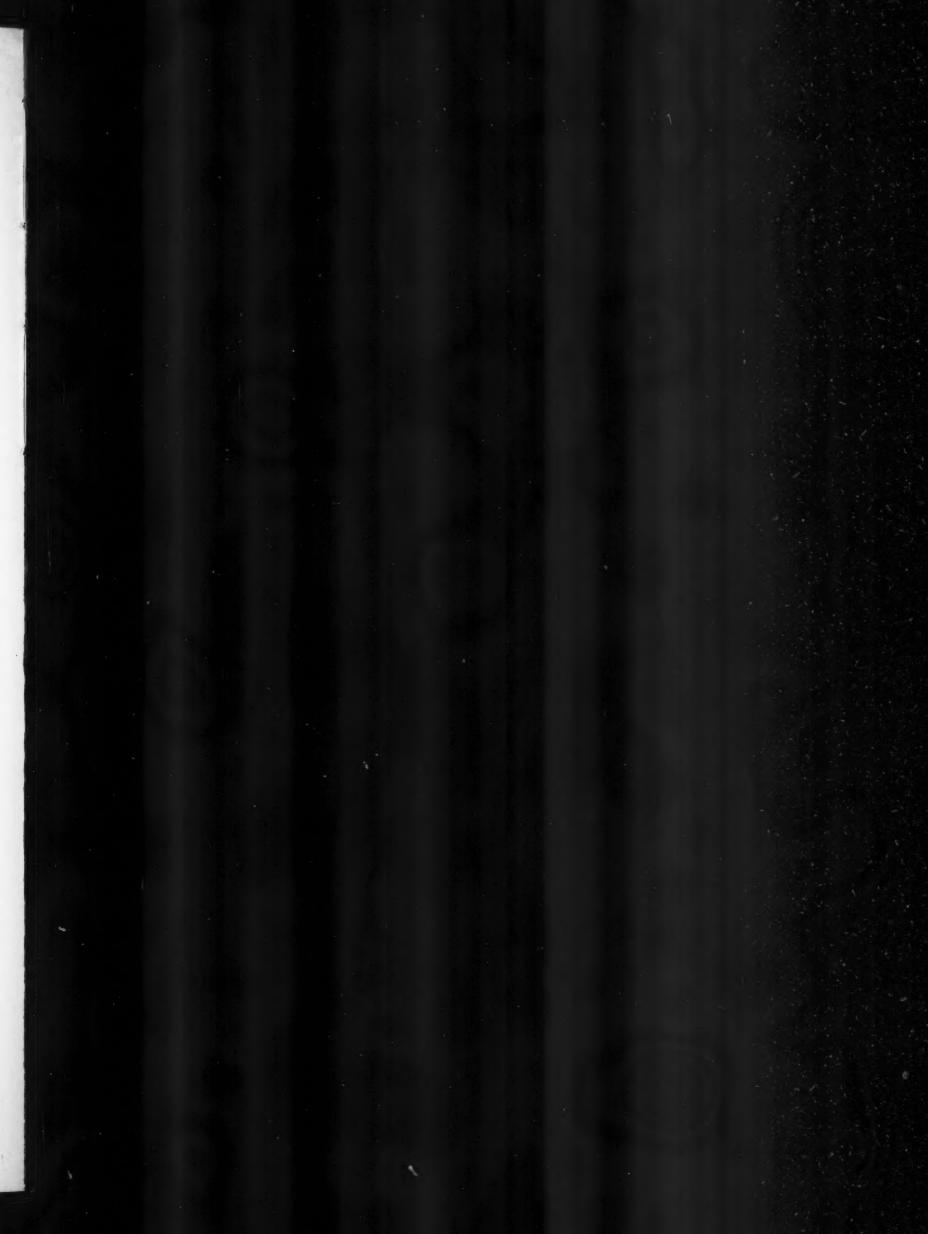
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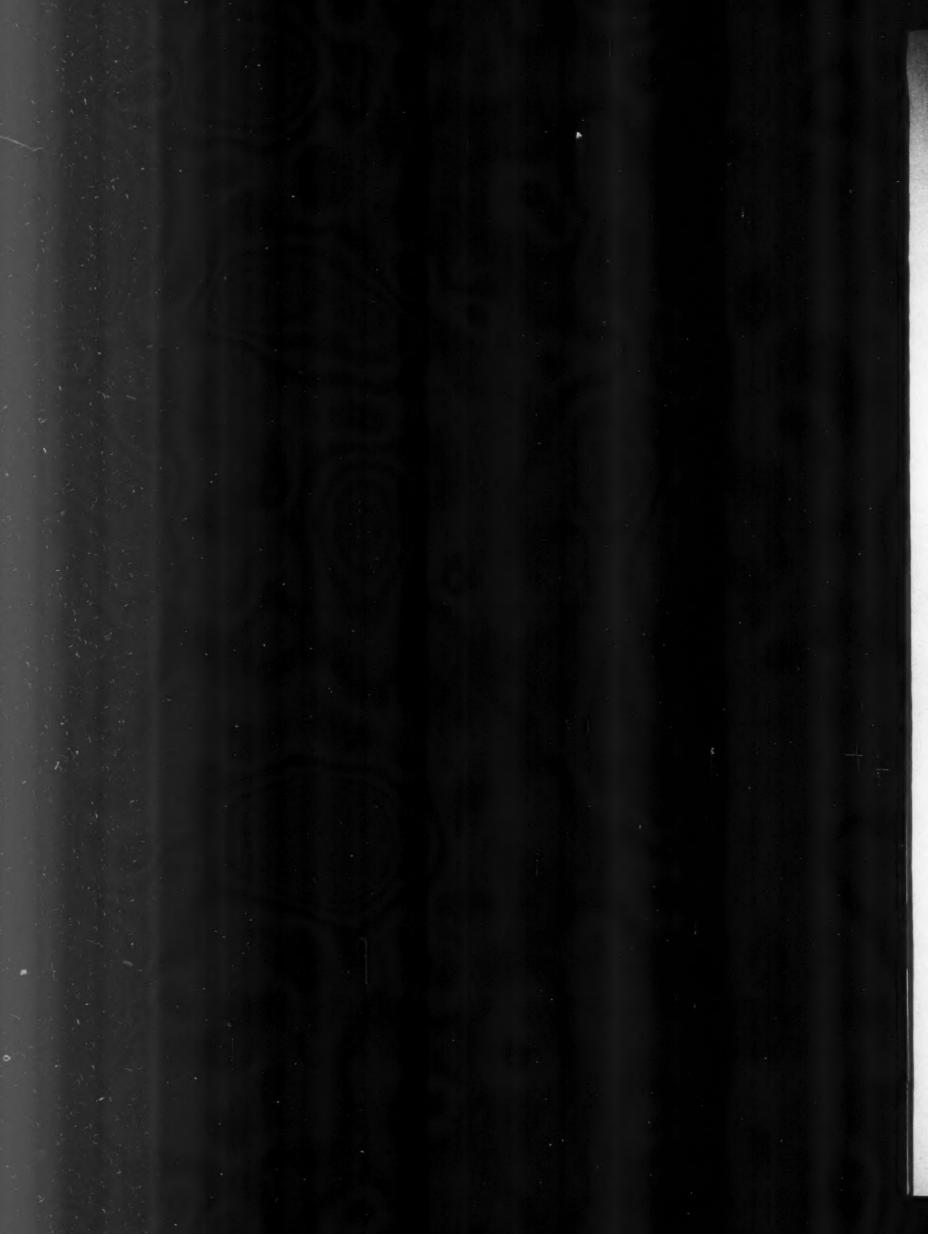
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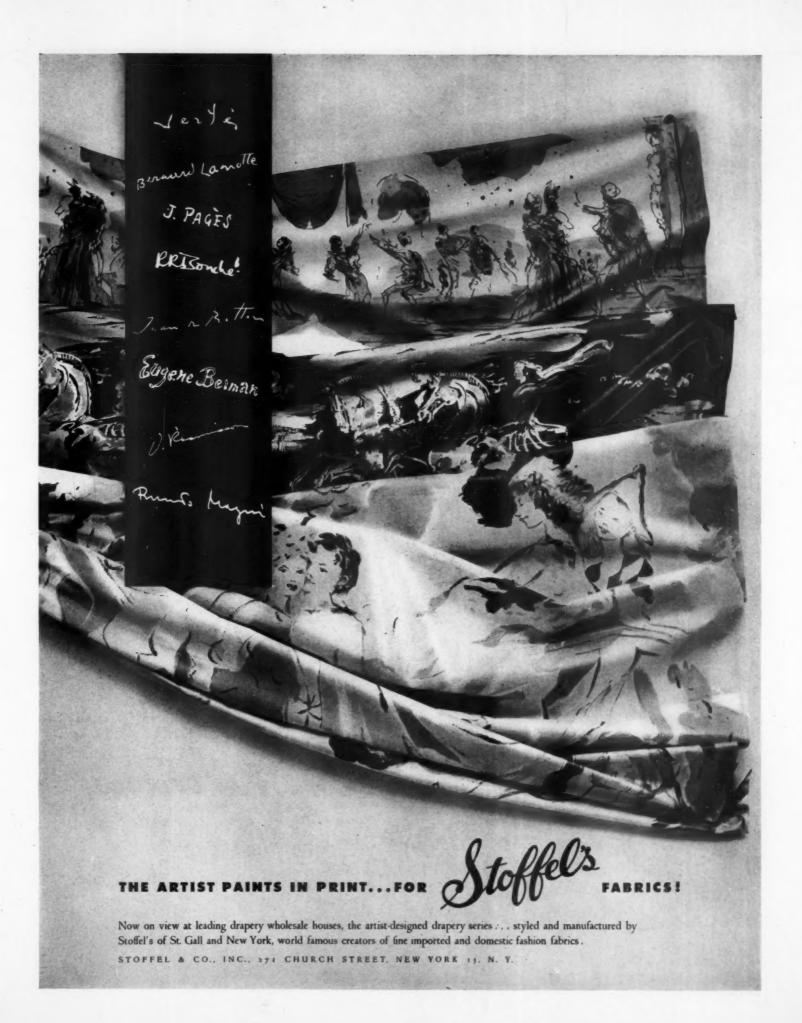
Dress and bathing suit by Carolyn Schnurer

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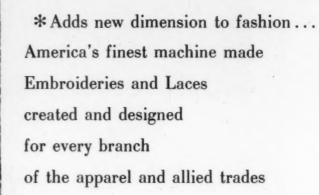
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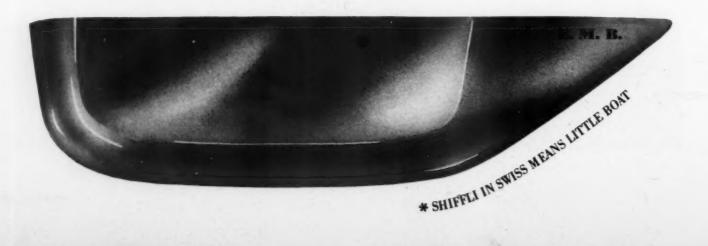
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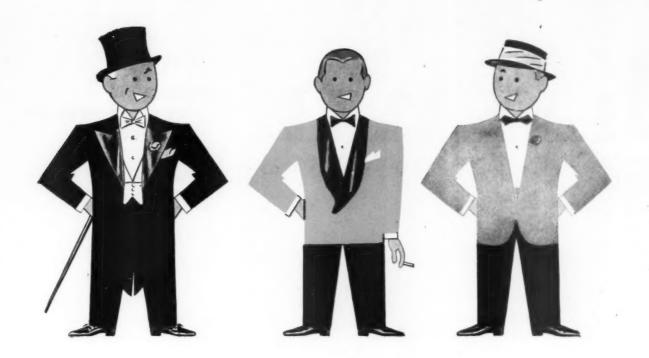
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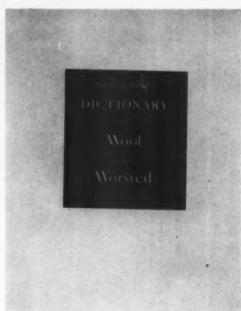


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# AMERICAN ARABRICAN

NUMBER NINE • 1949 • THREE DOLLARS A COPY

# Man

Man—the marvelous mechanism—registers stimuli through a network of nerves which is far more complex than the electrical system which lights up a modern city office building.



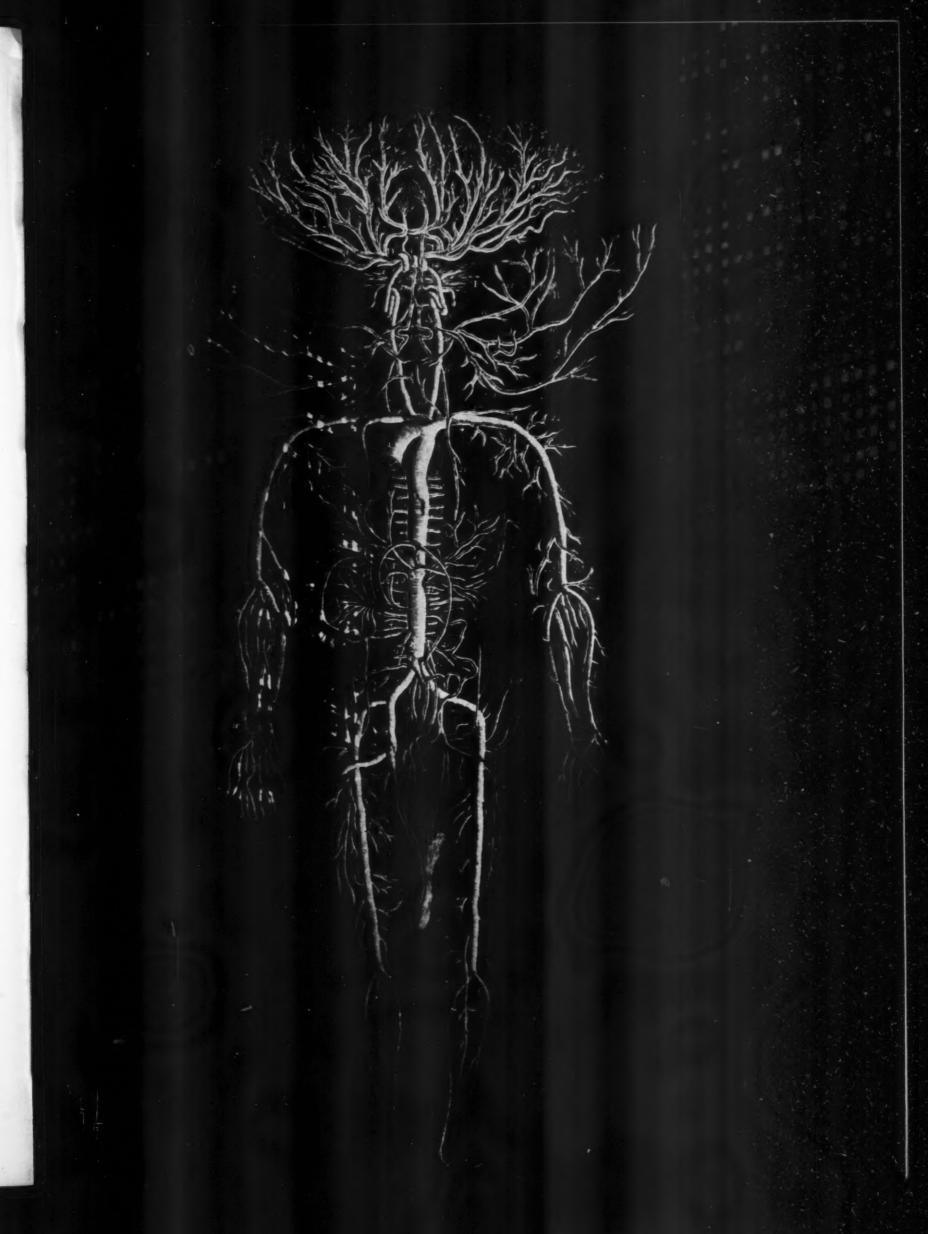




"I like — I don't like"... these are passing expressions which are really the result of an inner mechanism reacting to external stimuli.

Confront Man—any man—with a changing sequence of color—he will react as automatically as a complex laboratory mechanism registers the presence of different chemical elements.

For a simple test, and while continuing to look at these printed pages, merely place your hand alternately first over the red ball, then over the blue. Observe how your mood changes from a rather sombre feeling when the blue alone is exposed, to a rather cheerful feeling while the red ball is exposed. A further series of color and form revelations will be found on the next few pages.





#### HOWARD KETCHAM SAYS:

#### IT'S ALL DONE WITH COLOR

Howard Ketcham, out of his active current experiences as color and design consultant to industry, reflects on the growing power of color to accomplish specific objectives for business men: increasing sales, cutting costs, speeding production. His work in styling interiors for airplanes, railroad coaches and stores, and as a consultant to fabrics manufacturers on problems of color development and color promotion, have enabled him to cull a number of pointed stories and practical observations in his latest article as a color consultant for AMERICAN FABRICS. (Cellophane swatches on this page courtesy of E. I. du Pont Co.)

To the old saying "It's all done by mirrors," Howard Ketcham makes a pointed amendment.

The illusions, the emotions and the practical applications involved in the skillful use of color will have a potent merchandising effect in any field served by the textile industry.

IMAGINE yourself visiting the circus some day, with your children, and finding yourself in an air-conditioned side-show building in which you stood in a dark corridor, with nothing separating you from the inside of big Gargantua's unbarred cage except a border of cardboard strips carefully arranged in various planes, each in a different color.

A story-teller's nightmare? Not necessarily. Europe's leading authority on zoos, Mr. Walter Van den bergh, has suggested the possibility of using the tricks in depth perception that can be played with combinations of colors in different planes, to make it possible to narrow still further the impediments to viewing wild animals. The possibility that this may be accomplished would be more remote if Mr. Van den bergh had not already eliminated the nets from birds' cages in the Antwerp zoo, by surrounding the cage with a beam of light; the well-fed, well-sheltered birds refuse to pass through and beyond the safely lighted area to explore the outer darkness from which the public watches.

#### Color in Every Day Life

The illusion color can create of endless space, when properly used, is only one of the many possibilities aroused by the potentialities of color. In our own lives, we call on color every day to perform tasks far more vital than improving the view of a well-fed simian discouraged from exploration by an illusion of distance.

In a single week, recently, the following new practical appli-

cations of color were reported:

College crewmen, who formerly competed bare-chested or in white, were assigned distinctively colored shirts so that spectators would at long last be able to distinguish the oarsmen of the competing schools;

A carbon monoxide detector, filled with yellow chemicals which turn green if exposed to the gas, was invented;

A Greek tobacco plant called on the writer to set up colors for tobacco sorting tables, so that each of the different grades could be sorted with greater speed and accuracy;

A "color test" was announced by the United States Public Health Service to speed research into the common cold virus.

1 1 1

From day to day, color applications have come closer to home. The ancient puzzle of pulling out the correct key from a cluttered key chain is solved by painting the head of each in a different color — it's easier to remember color and associate it with a specific use than to depend on the shape of the wedged end.

A German hospital reports that ulcer patients improved, in a room painted in a restful olive green, beyond the amount of recovery dictated by medical experience.

A major producer of canned soups joined forces with a major producer of canned milk in a vain fight to bar a major producer of canned meat from using labels with a similar combination of red-and-white bands. (The meat producer would have been better off, anyway, if he had sought a distinctive variation of red to

provide a touch of the unexpected and thus to make his package stand out more effectively on store shelves.)

From the standpoint of selling merchandise, in matters of personal comfort and convenience, and in the operations of industrial production and scientific research, we find color playing an ever-increasing role in our lives. As simple and everyday a matter of eating is affected by color — on the one hand the pleasure of eating a peach or smoking a cigarette is heightened by the sight of the color of fruit and smoke, as you will notice by eating or smoking in the darkness. On the other hand, food can lose its taste appeal by unfamiliar coloring, as a restaurateur found when his fluorescent lighting turned coffee a sickly grey, and a railroad found when it served steaks cooked electronically without a change in color from natural raw red.

#### Why has color this power over our lives?

The answer lies in two general classes of effect; both are based on the associations created in the mind by color, some going back through the centuries of man's history and some through our own individual experiences.

Color creates optical illusions, changes the actual appearance of objects, lingers in our vision through variations in the contrasting power of different color combinations;

(2) Colors themselves are related in our minds to varied emotional actions; they can be warm or cold, bright and gay, or sad and depressing, pleasing or irritating, refined or crude, wild or tame, exciting or relaxing, clean or dirty, rich or cheap, etc.

Appearance starts with color; the first impression of an object is registered within a fraction of a second after it is observed, and color is generally the first factor noted. That part of our organism which registers emotionally is much quicker than the mind.

#### Shipping Clerk Test . . .

Show a shipping clerk two cartons of equal size to lift, and he will unhesitatingly start for the carton in a lighter color — it gives a convincing impression that it is lighter in weight. Tell the clerk to move the carton either to a red or a green table, each 20 feet distant, and he will move it to the red one — it seems to be at least a full step closer.

#### Egg Sales Increase . . .

The effect of color on the appearance of objects guides our judgment in liking or disliking them. A 30 percent increase in sales of white eggs was registered when blue cartons were introduced, and today it is almost universal practice to use that color, which enhances the whiteness of the egg.

#### Motor Cars . . .

Color influences the appeal of various design lines; for example, when a motor-car manufacturer of a certain make of automobile introduced a color not previously used, his sales zoomed in the new color. But a rival manufacturer copied the color, and the action boomeranged, because the lines of his car had no appeal in that particular color.

Although color influences the apparent shape of an object (as every manufacturer of dresses for the "stylish stouts" can well attest!) design has no influence over color. The difference between the lines of two different makes of automobile, each in the identical green, will not cause the two cars to appear different in color.

1 1 1

Physical factors, as well as psychological considerations, govern our use of color. Yellow has the strongest color identity, and is particularly effective against certain backgrounds — earth, sea and sky. A yellow balloon, cast aloft together with balloons in five other colors, will be visible long after the others are lost against the purple-blue background of the sky.

We find many practical applications of this phenomenon

... yellow school-buses to stand out on country highways, yellow taxicabs for the crowded streets of major cities, yellow dye for seawater is used by pilots downed at sea. Yellow and orange clothing items, and similar high-visibility colors, for children forced to play in city streets, would be a valued safety factor.

#### In Television . .

Physical considerations are important to the motion picture industry in its work with color films. In one studio, a blond wig was dyed black for use by an actor portraying the role of a murderous villain — and the curious effects of the dye and the film process caused it to photograph green! In another film, actors seen against a cream-colored background appeared drawn and grey. A vast new field of study is needed to solve problems connected with the selection of fabric colors for use in colored motion pictures — and color television when it arrives.

#### Photoelectric Cells . . .

One man has even applied delicate scientific phenomena related to color in solving the problem of putting out the family cat. A Schenectady scientist has devised a photoelectric door opener which permits his black cat to re-enter the cellar but bars felines of brighter color!

#### Employee Identification . . .

One factory had a practical idea during the war to cut down loitering by employees in departments other than their own. Smocks in varied colors were distributed for wear in the plant, each color designating a particular section; it was easy to note who was passing time away from her own department.

#### In Billing Departments . . .

A hospital used colors to eliminate the continued loss of revenue as bills were made up and patients discharged before statements of charges had been received from all departments. The charge statements were printed in different colors, each related to a separate department; not till the full complement of colored slips were assembled was a final billing calculated.

#### 1 1 1

The many factors which make an apparel color appealing or a shelf warmer, are largely the product of emotional reactions to color.

One war veteran traced for me his changing taste in color for his neckwear since he left the armed services; from bright yellow creations, to gold, to grey, to maroon, to pink, and now brown. Each of these colors was for a time the dominant color in most of the neckties he wore. The loud yellow represented revulsion from the repressions of service; gold was both an evolutionary change, and a reflection of new confidence and feeling of improved economic status. Grey represented a complete reaction, back to reserved and quiet appearance, during a summer season. Maroon was a new development toward brightness, but with more of an eye for dignity; pink represented a summertime concession to lightness of spirit. Brown represents a feeling of solidity in the life he has been building, a searching for stability.

The important point is that his choices were not unique. These were colors that were widely available, and frequently seen.

#### 1 1 1

It is a curious truism that shrewd buyers will sometimes take the wrong fabric in the right color, but never the wrong color in the right fabric. A correct analysis of prevalent moods will make it possible for one who knows which colors are associated with different emotions — who can discern the shadings of mood with the slight variation of colors — to select colors that will have widespread appeal.

A wise merchandising man recently told me how an effort to sell a patterned dress fabric in several colors was failing before an (Continued on next page)

# BLACK ON YELLOW

The combination of black on yellow provides the greatest visibility, according to scientific test. To obtain the greatest possible legibility, therefore, more states employ this combination on automobile license than any other; for the same reason, some modern schools now use yellow "blackboards," with black chalk. The combination is effective in advertising, packaging and display only if used judiciously, however, where "recall value" is more important than legibility, the better-remembered blues, purples and greens may serve more effectively.

#### Dependable General Color Law:

The more the Contrast, the more the Brilliancy.

From the Secret Formulas and Techniques of the Masters, we learn, "That the superimposing of colors produces different qualities of intensity and allows more variations," was a principle applied in the stained-glass work of the Middle Ages. The greens were often obtained by placing a yellow glass over a blue one set into the same mullions. This combination gave the color a more intense brilliance than if the glass had been merely a green color. Sometimes the vibrations would be augmented by interposing a piece of colorless glass between two colored ones.

When two or more colors are used, one should have the feeling of seeing the whole color ensemble at once. The quality of wholeness should dominate.

Constable (the British landscape painter) said that the superiority of the green he uses for his meadows derives from the fact that it is composed of a multitude of different greens. What causes the lack of intensity and of life in verdure as it is painted by the common run of landscapists is that they ordinarily do it with a uniform tint . . . What Constable said about the green of meadows can be applied to all the other tones, wrote Delacroix.

Every reflection partakes of green, the edge of every shadow partakes of violet.

Raw color = Coarser Vibration Sensitive color = Finer Vibration

Black coal reflects a thousand hues in the eyes of the artist. It is not until its metamorphosis into the diamond that these hues are visible to the average sight.

Taste — that which instantly separates that which deserves admiration from that which is mere false brilliance.

Color can give a feeling of thickness or dimension. Study the yellow and green backgrounds on this page. Which gives a feeling of extra thickness?

Porosity of surface affects color considerably. The more porous fibers and cloth tend to soften colors. Painters know that linen or hemp canvasses will maintain brilliancy of the paint whereas other surfaces because of porousness and hygroscopic variability will result in toning down of the colors.

Even a sparrow will resemble a canary if it is painted yellow!

In which leaf
would you believe?



## GREEN ON WHITE

Green has the greatest legibility of any color, on a white background. In a test of colors for a motor fuel company's gas station signs, a series of company signs was painted in different colors. At 600 feet, bevond the distance of readability for any of the signs, the bright green with blue undertone was distinguishable by its color while others were not. As examiners walked toward the signs, it was noted that the green-on-white became legible at the greatest distance.



## **HOT COFFEE**



# WHICH SIGN IS THE MORE CONVINCING?

OW many mid-morning snacksters will patronize a luncheonette whose window sign builds confidence because of a convincing color, or a roadside motel which doesn't use color that adds subconscious agreement to the message of its poster?

Too much dependence is placed on the printed word — too little on the colors and the color associations that back up the idea. In such simple examples, there are few slip-ups today, but in the use of packaging, displays, letterheads, trademarks, labels, shipping cartons, and in advertising and promotional materials, the average business man has not generally applied the potent elemental aspects of color psychology. The color engineer, with discrimination born of research and experience, elects authoritatively to use only those colors that confirm and accent the printed word — or the merchandiser's objective.

#### It's All Done With Color (continued)

obdurate dress designer — until he mentioned how well one of the colors would go as an accent color for a white blouse. The designer immediately envisioned the dress material in combination with a blouse repeating the one dress color . . . pictured the mood effect of the combination — and business was transacted.

There's a reason why more sports fans will buy programs if the color is red — a reason of mood. And mood sells more merchandise than merchandise itself.

(continued - please turn page)



# RED ON WHITE

The combination of red on white is difficult to read because of the vibration factor. Red is a stimulating color; the famous coach, Knute Rockne, painted the wall of the team's dressingroom red to inspire the home team between halves, while dulling the edge of the visitors by placing them in a dressing room painted in relaxing hues. Sports programs and certain types of magazines have better sales with red covers than with any other color. But it is an irritating color for reading, because of the vibration. A railroad which printed a timetable in red caused difficulty for passengers; when they tried to read the fine type, it seemed to "jump."



#### It's All Done With Color (continued)



EYE COMFORT

 Not good — the pupil of the eye (black circle, center) is strained by too little light and too little light reflection in surrounding colors. When illumination represents approximately 5 footcandles or less, pupil is enlarged as shown.



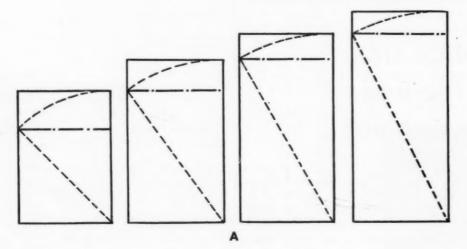
2. Better — the pupil is relaxed, due to an increase of illumination to about 10 footcandles, with brighter surrounding colors to increase reflection — no dark greys, dark blues, or greens. In this light intensity the eye can appraise merchandise more accurately.



3. Still better — about 15 footcandles, just short of proper illumination for general seeing requirements indoors.



4. Good — the eye sees clearly, in proper focus and without strain and fatigue, due to correct (30-footcandle) amount of light for general seeing requirements in home, office, factory or store. Colors contributing to this superior seeing condition are pale creams, light yellows, buffs, tans, yellow-greens and light blues.



One of the simplest means of assuring that two areas in a design pattern are in appealing proportion has been handed down to us by the Ancient Greeks.

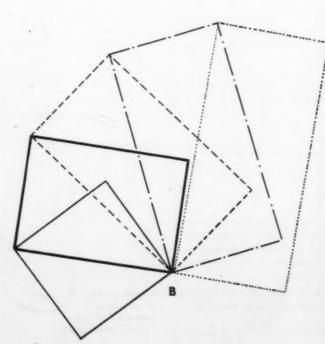
A square is the starting point; then a diagonal is drawn between two opposite corners, and the length of this diagonal is made the length of two sides of the rectangle. The top and bottom sides of the rectangle remain the size of the original square.

of the original square.

The relationship of the two areas in each of the four diagrams shown in "A" above, shows proper proportion according to this ancient method of dividing space.

Figure "B" shows another

Figure "B" shows another means of obtaining the same results in getting rectangular figures of pleasing propor-



An ancient myth recalls that in the days of Babylon the great artists of that period had the capacity to distinguish and enumerate some 7000 individual color shades.

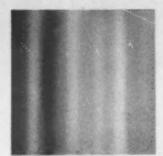
It was prophesied that with the passing of centuries man would reduce this capacity for sensing the subtler shades of color and would eventually lose his capacity in this direction.

The great masters in Babylonian times gave to their pupils the task of producing thousands upon thousands of different colors and this task it was said resulted in a remarkably high degree of color perception among the ancients.





While it is usually desirable when making up color combinations to use larger amounts of the neutral shades and smaller amounts of the bright ones, notice that striking effects can be obtained by doing just the opposite.

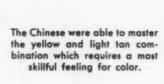




Cool colors, like blue, blue-grey, green give the effect of a hard smooth finish to surfaces, while warm colors — particularly the browns — create the Impression of soft shaggy textures. Apply this principle to styling of worsteds and woolens.



The difficult-to-handle blue and green combination was employed with notable success by the ancient Egyptians.









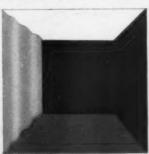
The vacuum cleaner, whose function requires that it be larger than esthetic taste desires, is made grey to be unobtrusive while the kitchen utensils have bright handles to help the housewife detect them quickly.





In general, the larger the object, the greyer the color should be. The serene combination of the grey gown (enlivened by the touch of color) would change into a disastrous combination if the areas were reversed.





Whether in a modern room or a pastoral landscape, this combination of color conveys a feeling of restful repose. Note that in both of these sketches "Color Does It!"



IT'S ALL DONE WITH COLOR (continued)

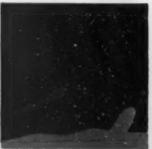
Man chooses the right color by using greyed green for a large barn and a bright emerald for his tiny jewel case. The reader quickly knows that the barn at left represents a larger object because of this principle.



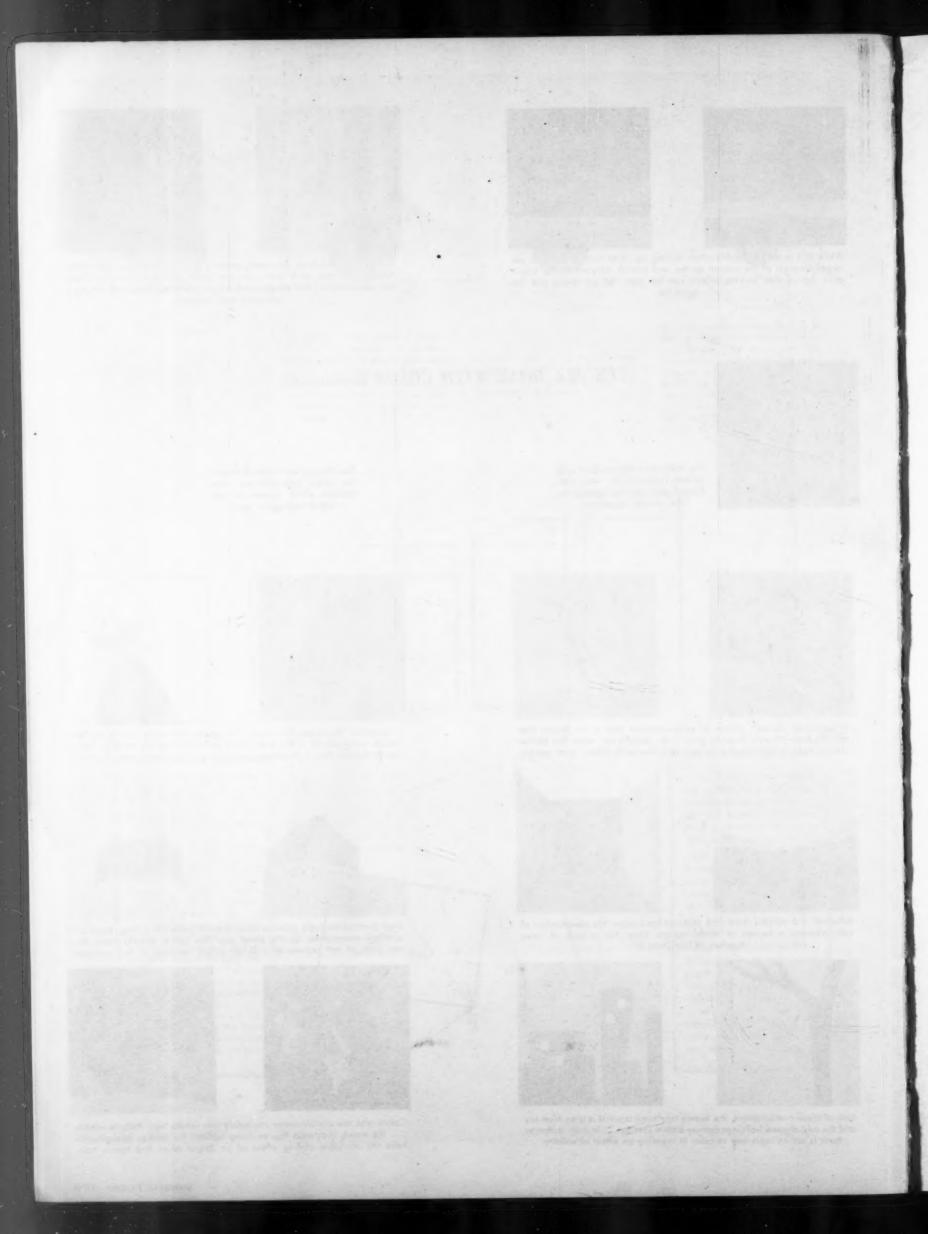


Both of these combinations, the brown tree trunk against a grey-blue sky and the odd shaped buildings convey a solid feeling . . . in both instances form is not as important as color in creating an effect of solidity.





Colors and the combinations you apply can create very definite moods . . . the weird, shapeless figures flying against the sinister backgrounds have the macabre chilling effect of an Edgar Allan Poe horror tale.



HERE

THE

BRIBE



Marriage enlarges the Scene of our Happiness and Miseries.

A Marriage of Love is pleasant; a Marriage of Interest easie; and a Marriage where both meet happy. A happy Marriage has in it all the Pleasures of Triendship, all the Enjoyments of Sense and Reason, and indeed, all the Sweets of Life.

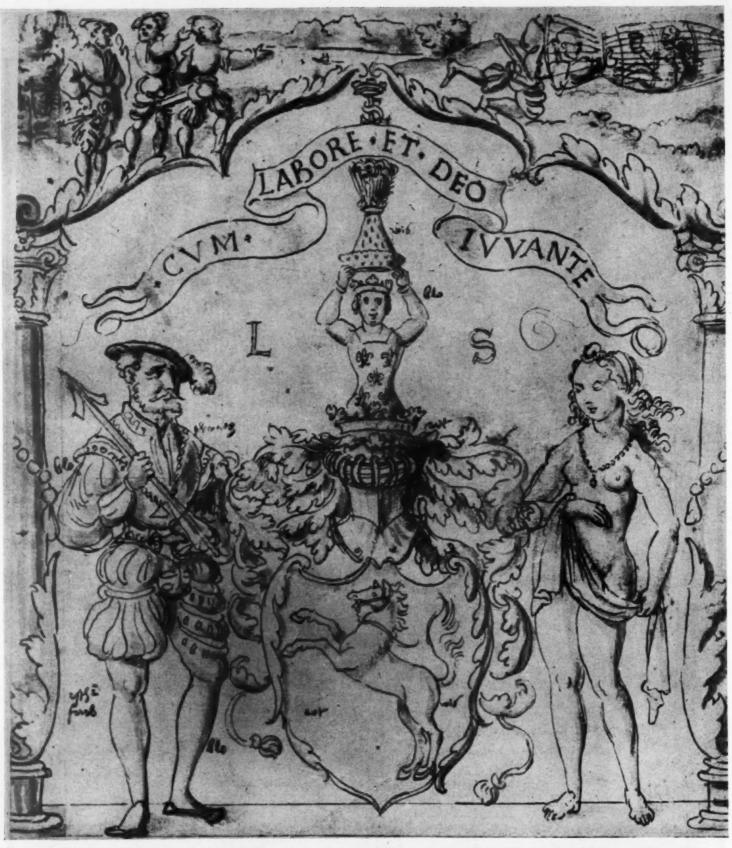


The marriage ceremony in its purest and most ancient form was the uniting of two people, who by type, temperament and sympathetic vibrations would blend together for the respective good of mankind, nature and the universe.

... In old manuscripts, one learns that the rite of joining two people together was a function of holy sages who possessed the knowledge and insight required to say:

"THESE TWO SHALL BE ONE."

The wedding dress, in the photograph opposite, is American and was created in 1872 and is now in the Collection of the Costume Institute of the Metropolitan Museum of Art. The dainty veil, held by a wreath of orange blossoms, was made in England of Bobbin Lace, 1800-1825.



The Eternal Eve is the subject of this 16th Century Sketch . . . below are wedding rings of various civilizations—(from J. R. Wood & Sons collection).



# Live Joyfully With the Wife Whom Thou Lovest All the Days of Thy Life . . .

Works, and not words, are the proof of love. A buxom widow must be either married, buried, or shut up in a convent.

Women, wind, and fortune, are ever changing. A chaste eye exiles licentious looks.

Man's best fortune, or his worst, is a wife.

1 1 1

Love is as warm in kersey as a king in velvet. Women laugh when they can, and weep when they will.

The ass covered with gold is sometimes courted more than a good mare with a pack-saddle.

A constant guest is never welcome.

(A marriage wish.) One year of joy, another of comfort, and all the rest of content.

Upbraiding turns a benefit into an injury.

Where there is whispering, there is lying.

A good wife's the best goods in a man's house.

One can go to heaven in a feather-bed.

1 1 1

Want may make strife 'twixt man and wife. A good wife and health, are a man's best wealth.

Don't let your mousetrap smell of cheese. Where there is no love, all are faults. The foot on the cradle and hand on the distaff is the sign of a good housewife.

A mill, a clock, and a woman, always want mending.

'Tis a good horse that never stumbles, and a good wife that never grumbles.

A good wife makes a good husband.

1 1 1

Virtue dwells in the tongue, not in the heart. The mother-in-law should remember that she was once a daughter-in-law.

When candles are out, all cats are grey.

Unreasonable silence is folly.

A fair bride is soon buskit, and a short horse soon wispit.

You must take the fat with the lean.

Wanton kittens may make sober cats. Two things a man should never be angry at; what he can help; and what he cannot help.

Take your wife's first advice, not her second.

Where love fails, we espy all faults.

The course of true love never did run smooth. A pennyweight of love is worth a lb. of law. Where the knot is loose, the string slippeth. He that hath a wife and children must not sit with his fingers in his mouth.

A too great dowry is a bed full of brambles. Too many helpers over dress the bride.

When either side grows warm with argument, the wisest gives over first.

A grunting horse and a groaning wife seldom fail their master.

When the husband drinks to the wife, all would be well; when the wife drinks to the husband, all is well.

Use legs, and have legs.

In marriage a handful of common sense is worth a bushel of learning.

Children suck the mother when they are young, and the father when grown up.

Where one is wise, two are happy.

An ill marriage is a spring of ill fortune.

She that hath an ill husband shews it in her dress.

All meat is to be eaten, all maids to be wed.

1 1 1

He that is needy when he is married, shall be rich when he is buried.

A hook's well lost to catch a salmon.

She who is born a beauty is half married. Go neither to a wedding nor a christening without invitation.

A house well furnished makes a good wife.

Two heads are better than one.

Silence is a fine jewel for a woman, but it's little worn.

Wedding and ill wintering tame both man and beast.

Trusting often, makes fidelity.

Better is a dinner of herbs where love is, than a stalled ox and hatred therewith.

1 1 1

A reformed rake makes the best husband. That is not always good in the maw that is sweet in the mouth.

'Tis as natural for women to pride themselves in fine clothes as 'tis for a peacock to spread his tail.

Two Sir Positives can scarce meet with a skirmish.

Rule lust, temper the tongue, and bridle the belly.

There is but one good wife in the world, and every man thinks he has her.

Venus smiles not in a house of tears.

We are all Adam's children, but clothes make the difference.

The Grecian ladies counted their age from their marriage, not their birth.

You will never have a bride if you must have one without fault.

For luv of the nurse mony kiss the bairn. A spot is most seen upon the finest cloth.

Wedlock sometimes turns to a padlock.

To seem to be in love and not to be, is throw-

ing the shuttle without weaving.

The wife is the key of the house.

A virtuous woman is the ornament of the house.

Wealth and content do not always live together.

Try the ice before you venture upon it.

We are never so happy or unfortunate as we think ourselves.

A lass that has too many wooers oft fares the worst.

Bride and groom are like woof or warp.

There is many a good wife that can't sing and dance well.

A shoemaker's wife and a smith's mare are always the worst shod.

Your looking-glass will tell you what none of your friends will.

There is more pleasure in loving than in being beloved.

Refuse a wife with one fault and take one with two.

1 1 1

When the mare hath a bald face, the filly will have a blaze.

Fine cloth is never out of fashion.

Wives must be had, be they good or bad.

Congruity is the mother of love. A little house well filled, a little land well tilled, and a little wife well willed, are great



Bridal Dress from Costume Institute.

A maid oft seen, and a gown oft worn, are disesteem'd and held in scorn.

A woman is to be from her house three times; when she is christened, married and buried. Two cats and a mouse, two wives in one house, two dogs and a bone, never agree in one.

A woman's counsel is not worth much, but he that despises it is not wiser than he should be.

To be virtuous is to do good and to do it well.

To fright a bird is not the way to catch him.

A lewd bachelor makes a jealous husband.

When one will not, two cannot quarrel.





The long hanging ribbons of this wedding bonnet may be what remains of the original veil. They are richly embroidered with flowers and leaves in bright, startling colors. A vivid wreath of flowers adorns the cap as well.

This demure bridal bonnet, French 1849, modestly framed the face of the bride. The bridal shoe, American 1905, has an embroidered bow knot. The bow knot has always, of course, been an important manifest at the state of the sta been an important marriage symbol.

#### FLOWERS WERE SYMBOL OF FERTILITY

Flowers have figured in many aspects of the relations between man and woman. In the present romantic stage of marriage and courtship, flowers symbolize affec-tion and thought. Originally, however, their meaning was far more potent and signified fertility and fruitfulness. The ritual of two young female children, scattering flowers such as orange blosssoms in the path of the bride, meant that

her marriage would be successful, that she would bear many children.

The idea of marriage has always been associated with the family and the rearing of children. This idea of fertility and potency, the con-

tinued regeneration of the race, was and still is one of the most important factors in man's life. Flowers were often replaced by fruit or grain, since grain suppos-edly insured fecundity.



This blue satin bonnet is embroidered with a leaf-like pattern. A cluster of fabric flowers crowns the cap and lends balance to the graceful trailing ribbons, which are also richly embroidered to harmonize with the bonnet itself.



The Chinese bride at one time wore a headdress made of the blue feathers of the Kingfisher bird. The pearls modestly shading her eyes were believed to have medicinal properties. To wear them, it was said, improved the beauty of the skin.



Hungarian Wedding Headdress for the Groom . . . and for the Bride! The colorful headdress of flowers, fruit and coins not only adorns the bride for beauty and decoration, but is eloquent of her hopes for a marriage that is fruitful and abundant with wealth and happiness. The more modest affair, at the left above, is worn by the groom. Both are from the Costume Institute of the Metropolitan Museum.

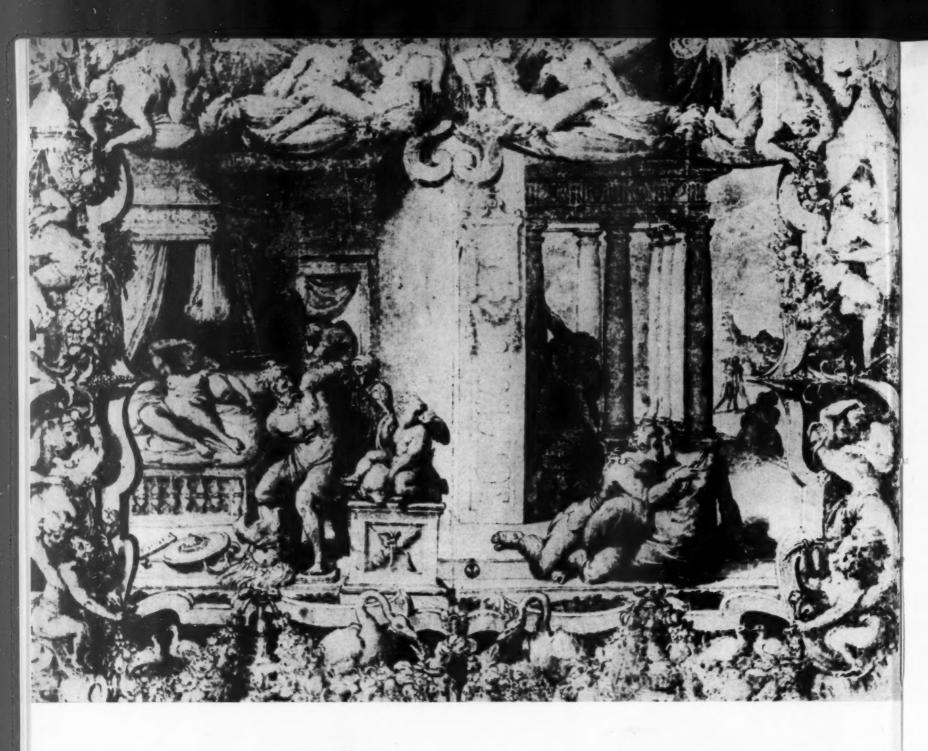
#### THE TROUSSEAU OR "LITTLE BUNDLE"

The price of the Hungarian bride is usually money and clothes. The dowry of the young girl consists of a chest of clothes, linen and bedding which constitutes her "bed." The "bed" is piled high with pillows, linen, clothing and other household accessories.



Preparing the Magyar Maiden's Marriage Bed

Photo Magyar Filmode



To set Marriage in its proper it as a State of Grace, and the Mankind; as a Businefs of Life, and a Change of Condition, ctoo much Reverence Light, we ought to consider first Ordinance of God to the greatest Importance in we cannot make with and Deliberation.

Contemporary wedding dress design by Joel of Murray Hamburger.

Wedding dress on page opposite from Costume Institute of Metropolitan Museum of Art.







## CAMEL HAIR FABRICS

By JOHN McKAY ADAN

ALTHOUGH IT CAN NEVER

BE CLAIMED THAT THE

CAMEL IS BEAUTIFUL OR

INTELLIGENT, THIS ANIMAL HAS PROVIDED

MAN WITH A RAW MATERIAL WHICH BRINGS

HIM BOTH COMFORT AND ELEGANCE:

(please turn page)

Mr. John McKay Adan, A.T.I., the author and collaborator of articles on specialty and kindred fabrics appearing in American Fabrics, is a graduate of the Scottish Woollen Technical College, 1922. He is one of the outstanding personalities who studied under the late Dr. Oliver, a name still revered among textile men the world over. Mr. Adan was awarded the scholarship of the Draper's Company of London, 1921, and in 1926 was elected an Associate of the Textile Institute of Manchester, England, He was associated with Messrs. J. and J. Crombie, Ltd., as designer and repre-

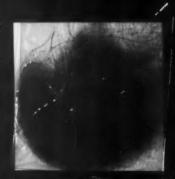


sentative from the close of World War I until 1930. While there he organized and conducted classes on the manufacture of woolen textiles under the auspices of the Aberdeen Education Authority. In 1930, he became manager of Botany Mills, Galashiels, before coming to the United States in 1931 to join the Worumbo Mfg. Co., Lisbon Falls, Maine. In 1933, Mr. Adan became superintendent of Cyril Johnson Woolen Company, Stafford Springs, Conn., a position he still holds. His next article in American Fabrics will deal with a new wool fashion promotion on District Checks.



A FABRIC FAVORED BY POLO PLAYERS ALL OVER THE WORLD BECAUSE OF ITS SUPERIOR THERMOSTATIC QUALITIES

BECOMES A NATIONAL AMERICAN OVERCOAT FAVORITE



THE STOCK

THE GREIGE

THE FINISHED FABRIC

THE RAW CAMEL HAIR FIBER SUPPLIED THROUGH THE COURTESY OF H. HAIGH & CO. INC.



SPINNING FRAMES — One continuous motion combines drawing, twisting and winding of the fibers into a coherent form ready for subsequent processing.

# THE STORY OF CAMEL HAIR

Modern weaving technique avails itself
of the remarkable thermostatic qualities of the camel coat to achieve
luxurious warmth-without-weight overcoatings

IT can never be claimed that a camel is either beautiful or intelligent. Tradition of the East has it that when Allah had finished making all other animals, he found himself with several odds and ends lying around and with these he made the camel. It is also related that after Creation when the animals looked at their reflection in the water, the bat, the ostrich, and the camel were so ashamed of their appearance that the bat took to the darkness, the ostrich buried its head in the sand, and the camel fled to the desert. Another legend has it that when Jupiter sat in audience on the mount of Olympus, he received an application from the horse, who wanted Jupiter to use his influence in giving him a "new look." The horse wanted a longer neck like that of the swan, longer legs to carry him at greater speed, and a wider chest to enable him to breathe more deeply. So Jupiter produced the camel in compliance with the request of the horse, and the latter was so terrified that it fled, and has had an instinctive dislike of the camel ever since. History records that when Cyprus was at war with Croesus the wealthy Cyprus mounted his infantry on camels and used them as a screen for the remainder of his infantry in attacking the cavalry of the enemy. Immediately Croesus horses smelled the camels and they took to their heels.

Other legendary stories of the camel refer to his perpetual sneer as being due to his knowledge of the secret name of God, which gives him power over all Djins, Afrits, Demons and Spirits. Accordingly, the camel considers himself a very superior sort of animal although he does not benefit from his knowledge, as he is able neither to pronounce God's name nor express it. Modern enlightenment, however, attributes the expression of the camel to the superiority of his coat to that of his fellow creatures.

It is by the animal's very stupidity rather than by its intelligence that the camel has proved to be the friend of man. As a beast of burden he will carry half a ton twenty-five miles a day for three days on end, without drinking water. A camel that has been too heavily laden will refuse to rise, but once on its feet it will keep on walking until told to stop or until it drops from sheer exhaustion.

#### In Biblical Days

Nevertheless, despite its homeliness and stupidity, the camel has been a loyal and faithful servant of mankind. Laden with cargo of silks, tea and ivory, he has for centuries been carrying the treasures of the East to the noble families of the West, ploughing his way westward under the merciless heat of the desert sun, over the Tibetan plateau, into the freezing regions of the Himalayas and Mongolia at his steady gait of two and one-half miles an hour. Down through the ages the camel has been the faithful slave rather than the friend of man. In the Book of Genesis we read that after Joseph's brethren had stripped him of his coat of (continued)

WEAVING — Through highly synchronized looms, camel-hair fibers are better woven than ever before in history.











CAMEL HAIR (continued)

many colors and cast him into an empty pit, "They sat down to eat bread: and they lifted up their eyes and looked and behold a company of Ishmaelites came from Gilead with their camels bearing spicery and balm and myrrh going to carry it down to Egypt." It is of interest to note that very possibly Joseph's coat of many colors was a colored blanket with varying warps and fillings since it has been established that the Hebrews were learning the art of weaving from the Egyptians while they were in bondage. It is a remarkable fact, too, that the principles of modern weaving are exactly the same as they were in the time of Joseph. In the First Book of Samuel we read that "the staff of Goliath's spear was like a weaver's beam," while in Job: "My days are swifter than a weaver's shuttle." There may, however, be some difference today in the size of the beam and the speed of the shuttle!

#### For Burning Heat or Chilling Cold

To combat the swift-changing climatic extremes to which it is subjected, the Bactrian camel has been provided with both fat and raiment. In his double hump he carries the store of fat that will see him through the sub-zero temperatures of the Himalayas and Mongolia while his "double cloth" thermostatic coat with its face of coarse shaggy hair, and its lining of fine camel's down enables him to carry his cargo at a steady gait through the scorching heat of the noon-day sun and the freezing chill of the night air. Within a period of two days the camel is subjected to greater climatic vagaries than any other animal. Little wonder that its coat is as much sought after today as it was when a Persian prince would offer "my carved Indian emerald for a bale of camel's wool." As far back as 1369, Tamerlane girded himself with camel's wool under his corselet while Richard Coeur de Lion wore a shirt of camel's wool under his armor to ease the chafing as he went to the wars of the Crusades.

So, whatever its intelligence or looks, the camel has provided man with a raw material which will bring him both comfort and elegance. It has been claimed that a 22-ounce camel-hair fabric has the heat-retaining qualities of a 34-ounce woolen overcoating.

There are two distinct breeds of Bactrian camels — wild and tame — and while both types are found in Central Asia, it has been found by comparing the two types with the fossil remains



FAVORITE of college men for many years, camel hair received its first great forward push at Yale University some quarter of a century ago. It seems that a younger member of one of Long Island's polo playing families took to wearing his camel hair polo coat not only around the polo field itself, but on the campus as well. New Haven tailors say that this was the beginning of a nation-wide demand and popularity which has continued throughout the years.

of an extinct species that the wild breed bears a closer resemblance to the prehistoric type than does the tame variety. The most striking difference is that the last molar in the wild species is much smaller than that of the tame camel and bears a closer resemblance to that of the prehistoric type.

#### Camels' Wool and Camels' Hair

The camel sheds its coat every summer and its hair is collected in bags by a Mongolian "trailer," whose job consists of picking up the tufts of hair as it drops from the camel during the shedding season, and placing the hair in baskets strapped to the last camel or camels in the caravan. The Mongols collect the camelhair, place it in bags and sell it to the dealers in Kucihua. Eventually it arrives in China, whence it is shipped to all corners of the globe where fine cloth is made. The bulk of the camel-hair for the fine woolen trade is shipped to London, since British interests largely control the camel-hair market. It is graded into fine, medium and coarse qualities. The soft underdown of the camel's coat is referred to as camel's wool, while the coarse wiry outercoat is known as camel's hair. Because of the nature of its collection even the finest camel's-wool bales contain much of the coarser hair, and to segregate the coarse hair from the fine underdown the wool is scoured and combed, the coarser hair producing the top and the finer camel's-wool the noils. For the very finest grade of camel's-wool the raw material is double-combed. Generally speaking camel's-hair is graded by color; the lighter the color the finer the hair is. Camel hair has a lustre and a silky handle that is all its own, and the undyed raw material produces a fabric whose rich mellow tones are hard to duplicate from white wool. It must also be remembered, however, that some deviation in shade is frequently found in the natural undyed camel-hair although this can be controlled somewhat by the judicious blending of different natural shades to correspond with a standard color.

To produce a line of camel-hair grays is impossible, since there is not natural white as in the case of mohair, etc., and frequently fine double-combed kid mohair noils are substituted for the white in the gray mixtures.

#### Difficulty of Grading by Percentage

Some years ago high-grade woolen manufacturers had to appeal to the Bureau of Better Standards to protect their fine camel-hair fabrics from the wiles of the cheaper manufacturer whose product only contained a small proportion of camel-hair and consisted very largely of dyed wool. At that time it was decided that camelhair fabrics be graded according to their camel-hair content, so that a fabric containing one hundred per cent camel-hair should be so marked and that a fabric containing fifty per cent wool and fifty per cent camel-hair should be marked accordingly. However, since the camel-hair itself varies very considerably in quality and value, it quickly became evident that some fabrics containing one hundred per cent camel-hair could be very inferior to some made with fifty per cent wool, fifty per cent camel-hair. One of the very highest grade British camel-hair fabrics is constructed with 65% fine camel-hair noils and 35% Port Philip lamb's wool. As a result, buyers were once more confronted with the "rule of thumb and four fingers" in testing a camel-hair fabric for quality, or were guided by the reputation of the manufacturer of the product.

#### The 22-Ounce Year Round Fabric

Camel-hair fabrics have enjoyed vogues in a variety of weights and types from 9-ounce dress goods for women to 40-ounce great-coats for men, but it has been found over a period of years that the natural niche for a camel-hair fabric is a 22-ounce year-round top-coat for men and women, in a velous or plush finish, due no doubt to the fact that camel-hair produces such an admirable material for "all-weather" comfort. The remarkable heat-retaining qualities of the 22-ounce camel-hair fabric makes this "warmth

without weight" property particularly desirable today when modern heating systems in cars and homes make the old "deadweight" type of overcoating so undesirable.

In its most luxurious form the 22-ounce camel-hair plush or velour is made to the following particulars:

Warp: 23/4 Run right twist 10% 12-months Texas wool 90% single-combed camel-hair

Filling:  $2\frac{1}{4}$  Run right twist 2 ply  $2\frac{1}{2}$  turns per inch

100% fine double-combed camel-

wool noils

1640 Ends in warp 10 x 2 Reed — 82" wide

30 picks per inch

32 picks for natural camel-hair

4 Harness Twill Right Weave: 2 up and 2 down.

The twelve months Texas wool is added to the warp to give the yarn better spinning and weaving properties and also to add to the warp strength of the fabric when finished. While using camelhair in the warp of a filling-flush fabric may seem an extravagance, it is found in practice that by using camel-hair noils in the warp the piece finishes from 5 to 10% longer than it does when made with an all-wool warp, and in the long run the camel-hair justifies its use. Since the filling predominates on the surface of the finished piece almost one hundred per cent, great care must be exercised in the selection of the stock used in the filling, and to develop a deluxe fabric only the finest double-combed camel-wool noils should be used. The less twist there is in the filling yarn the more satisfactory the results will be, since this avoids excessive napping during the finishing processes in developing the pile. The two-ply twist in the filling should also be as soft as possible, and two and a half turns to the inch is sufficient, although four turns may be used without seriously affecting the finishing properties of the fabric. The ten per cent wool in the warp amounts to a little over two per cent of the weight of the fabric.

#### Handling the Lighter Shades

The two picks per inch are added to the natural camel-hair shade to cover the bottom of the pile better, since there is a greater tendency to show a thready appearance in the lighter shades.

The fabric is so open-sett in the loom that little or no difficulties are experienced in weaving. Every broken pick must be repaired in the sewing room, but broken warp threads up to around one yard in length may be allowed to go (unless there should happen to be two or three ends together) since there is little danger of their showing in the finished fabric.

Sometimes the four-harness "broken-crow" weave is used instead of the four-harness cassamere twill.

While it may obliterate any tendency towards a twilly appearance on the face, the fabric if properly finished looks better on the regular twill ground, and has more attractive back. Woven to the above specifications the fabric should weigh about 29 ounces per yard from the loom.

1640 Ends Warp:

164 (10% take-up in weaving) 1804 Yards of 23/4 Run — 6.56 ozs. Filling: 30 picks of 84" width (2" added to actual loom width) = 2520 yards of  $2\frac{1}{4}$  R 2 ply = 22.40 ozs.

Total loom weight 28.96 ozs.

Wool content: 10% of warp = .656 ozs.

.656 ozs. x 100 = 2.27%

In finishing a fabric of this nature it is much better, when scouring and drying facilities are available, to have the piece both clean and dry before fulling, since this results in a cleaner color and faster and more even fulling.

To scour before fulling with two pieces in a set, use two barrels of a medium strength scouring soap, and run in the scouring machine for half an hour. Then run in warm water for half an hour and drain for fifteen minutes. Add 12 pails of a light scouring soap and run for half an hour, then in warm water for one hour and cold water for half an hour. When scouring four pieces in a set before fulling, use three barrels of a medium scouring soap and run for half an hour. Then run in warm water for half an hour and drain for fifteen minutes. Add fifteen pails of a light scouring soap and run for half an hour, then run warm water for one hour and cold water for half an hour.

#### Further Steps in Finishing

The goods are then extracted for carbonising. Run the piece through the carbonising tank and extract. After extracting, the piece is suspended over poles in a special dryer and allowed to dry until the piece is "cooked." The piece is now run in a dry fulling mill to break the burrs. It then passes to the neutralizing washer and is run first in cold water for half an hour, then in warm water for fifteen minutes. The washer is now filled to a depth of one foot with warm water, and one barrel of cold water in which has been well mixed four pails of neutralizing liquor is added to the goods, which are allowed to run for half an hour. (In making the neutralizing liquor one hundred pounds of soda ash or scouring salt makes fifty gallons or one barrel of the mixture.) The piece is next run in warm water for half an hour, cold water for half an hour, extracted and dried.

The piece in its dry state is now ready for the fulling mills. The selvedges are tacked and the cloth is fulled one piece in a mill double. Soap the piece well in a neutral fulling soap and shrink the natural colors four yards to a 50 yard piece, piece dyed goods  $4\frac{1}{2}$  yards, and stock-dyed shades  $3\frac{1}{2}$  yards all to be 281/2" wide on the double from the fulling mills.

The piece is now taken to the scouring room for finished scouring and when scouring two pieces in a set, ten pails of a light scouring soap are added, while for four pieces in a set fifteen pails would be ample. The pieces are run in the scouring liquor for half an hour, then in warm water for one and a half hours, and cold water for fifteen minutes.

To "sour" the goods, fill washer to a depth of one foot with cold water and for two pieces use a half pint of sulphuric acid mixed in a barrel of cold water. Add this mixture to the pieces and run for fifteen minutes. Extract the goods and measure (the pieces should be 54-55 inches wide at this stage). Roll the piece with steam and leave on the roll overnight ready for wet-napping next morning.

#### Why You Love To Touch It

It is on this napper that the delightful velour or plush finish, which does not disturb either way when rubbed, is developed. The contact of the piece with the napping rolls is controlled by an adjustable pulley. As the diameter of the pulley is increased the cloth is brought closer to the napping rolls. The fine quality of card-wire used by the highest grade mills develops the silken loveliness that is peculiar to the fine camel-hair "plush" or "velour." The "Greene" napper, made by the Woonsocket Napping (Continued on next page)



CARDING — The first formation of thread (without strength) into a manageable condition.

#### The Story of Camel Hair (Continued)

Machinery Company, in Woonsocket, Rhode Island, is frequently used for goods of this nature. The "Greene" napper is provided with an automatic attachment for cleaning the raising flocks from the card-wire as the cloth is being napped. While the action of the "Greene" napper on the cloth is rather similar to that of the teazlegig, the resultant pile has more tendency to stand erect and less to lie one-way and disturb readily when brushed the wrong way.

On the "Greene" napper, the piece is given two runs at No. 17 pulley, with number end up on the face, then four runs at No. 171/4 pulley the same way.

The piece is now wet-cropped and taken to the regular raisinggig which is used to do the raising spade-work. It is received on the raising-gig, two runs in water until it is soaking wet, and then four runs with good strong teazles. The piece is then extracted.

After extracting, the piece is returned to the "Greene" napper and with the number end down on the face (the reverse way to the first raising on napper) it receives three runs at No. 17½ pulley.

#### **Achieving Correct Pile**

The piece is now taken to the "whipper-and-dryer" where it receives a substantial pounding from wooden canes designed to remove all raising flocks and make the pile stand more erect as it enters the drying chamber.

After being dried at sixty inch width the piece is now ready for dry shearing. With the number-end up on the face and with slow brush wire and fast speed of the shear blades, the piece is given three runs, the blades being lowered a notch or two every run until the correct depth of pile remains.

Back to the "Greene" napper the piece is now dry-napped with number up on the face and receives two runs at No. 17 pulley and two runs at No. 17½ pulley.

#### Shearing Again

On the shear dry, the piece is placed with number-end up on the face, and receives three runs with slow raising wire and fast speed of the shearing blade. It is then returned to the "Greene" napper and with number-end up on the face, receives two runs at No. 17 pulley and two runs at No. 17½ pulley.

Back again to the shears, the piece receives with the numberend up on the face, three runs, again with slow wire-brush and fast speed of the shearing blades. It is returned to the napper and with number down on face receives two runs at No. 17½ pulley. The piece is now taken to the shear for finishing shearing and with the number-end up on the face, receives three runs with fast wire and slow speed of the shear blades. It then receives three runs without the wire brush to develop a nice lustre.

After the piece receives three runs on the steam brush, the piece is finished and with about 2% shrinkage should weigh 22/23 ounces per yard  $(56" \times 36")$ .

The fabric should have a filling test of at least 30 lbs. between one-inch jaws, and on account of the severity of the face napping, it will be observed that the piece is not touched on the back, so that the filling strength can be maintained.

#### Natural Shade Is Favorite

The sales on this fabric show about 75% to be on plain grounds without decoration. At least 60% of these plain shades are in the natural camel-hair shade, which maintains a steady popularity with the younger sporting set. The dark oxford shade would probably follow in popularity, with the deeper browns, medium to light greys, navy blue and blue oxford in that order.

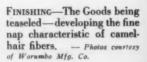
Of the fancy styles that have sold, the most popular is undoubtedly the "rain-drop" pattern which is made on a four harness twill weave, and having a solid natural camel-hair shade in the warp, with two picks of natural camel-hair, alternating with two picks of dark brown and white twist. Darker browns, dark to light silver greys and various depths of blue mixtures and murats are also very attractive in this style.

If an overplaid is wanted in this cloth some difficulty will be experienced in bringing up the strength of the warp stripe, and in subduing the filling overplaid. This is due to the fact that the filling predominates in the finished cloth almost one hundred per cent. However it has been accomplished by using two ends of strongly contrasting fancy,  $2\frac{3}{4}$  Run 2 or 3 ply in the warp and crossed in the filling with a softer fancy twisted with the ground. Some designers have achieved a similar result by having the fancy in the warp interlacing three up and one down against the two up and two down of the ground effect.

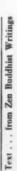
#### Fabric Improves With Dry Cleaning

Diagonals and herringbones are another desirable fancy style in this fabric, and are very attractively done on a pick and pick basis (one dark pick and one light pick) with every alternate pick in the filling interlacing exactly opposite to the preceding pick.

The draping qualities of the fabric are superb and the natural camel-hair shade which requires frequent dry-cleaning improves every time it is returned from the cleaners by developing a fine pebbly appearance not unlike that of a "pin-head" chinchilla.









'ree, rubbing from a stone tablet, after a Chinese painting y Li Wèn-Han, 1845— courtesy Metropolitan Museum of Art.

#### THE FIRST PRINCIPLE

When one goes to O-Baku temple in Kyoto he sees carved over the gate the words, The First Principle. The letters are unusually large, and those who appreciate calligraphy always admire them as being a master-piece. They were drawn by Ko-Sen two hundred years ago.

When the master drew them he did so on paper from which workmen made the larger carving in wood. As Ko-Sen sketched the letters, a bold pupil was with him who had made several gallons of ink for the calligraphy, and who never failed to criticize his master's work.

"That is not good," he told Ko-Sen after the first effort.

"How is that one?"

"Poor. Worse than before," pronounced the pupil.

Ko-Sen patiently wrote one sheet after another until eighty-four First Principles had accumulated, still without the approval of the pupil.

Then, when the young man stepped outside for a few moments, Ko-Sen thought, "Now is my chance to escape his keen eye," and he wrote hurriedly, with a mind free from distraction, 'The First Principle.'

"A masterpiece," announced the pupil.

#### Clothes Make the Man, or The Best Buck Book Buy of the Year

The irrepressible Colonel Elliott White Springs of the South Carolina Springs has done it again. Not content with hitting the jackpot as a short story writer, war hero, textile manufacturer and a man about the country, the Colonel has blazed a new trail which undoubtedly will add to his coterie of followers; for in his latest book, "Clothes Make the Man," \$1 plus postage, Springs Cotton Mills, 200 Church St., New York City, the author joins the two Poles — the North Pole of business with the South Pole of literary achievement.

Take a book of 433 pages and devote about one-seventh to the raw material, construction, color and finish of the famous Springs Mills, a potent factor in the American textile picture of today. This portion of the book gives a factual recounting of the rise of the mills, the names and the figures concerned down through the years to make the plant what it is today, plus the problems of railroads and transportation. Then add a hundred or so pages of letters which are genuinely humorous, historical, whimsical, caustic, satirical and anguished.

Now you may dismiss all the foregoing as a kind of prologue and then throw in 250 pages of short stories. And, what have you? An anthology? A collection? A documentary? Whatever it is, it's none of these: and when a name for this strange, interesting hybrid is coined, it should be properly registered in Washington (though it might be suggested that the Colonel will "goggle" at this capital).

#### Beginnings of Textile Empire

The reader who is interested in the origins and growing pains of Springs Mills will find information about the humble, inauspicious beginnings of this present day textile empire which centers in and around Lancaster, South Carolina. Certain interesting facts about financial manipulation, stocks and ownership are set forth in a lucid manner. The Lancaster and Chester Railway Company rates a well-deserved section in its own right, dogged as it was by calamity and catastrophe.

An idea of the size and importance of this empire can be gained from the following figures: 550,000 spindles, over 13,000 looms, 12,000 persons on the payroll, a majority of them representing offspring of employees. There are over 600 stockholders. 99.46-percent of the employees are fifth generation Americans descended chiefly from Scotch and Bavarian ancestry.

The company provides low cost housing for its workers at an average cost of fifty to seventy-five cents per room. During the late war the entire output of Springs Mills was devoted to war products and thirty-six different items were produced. The factories feature scientific lighting and air-conditioning and support a splendid cafeteria as well as an up-to-the minute newspaper. In 1948, life insurance and hospital insurance policies were distributed to all employees. Up to eight percent of their wages is provided to employees as vacation pay.

The section of letters is concerned with two main topics—the early New Deal and views on advertising. In the first part the author deals with certain onerous features of operation in the time when Codes governed plant operations, issued orders concerning the quantity of production and prescribed Section 7A. Colonel Springs manifests his displeasure with Washington regulations and with some of the folks who operated them—Perkins, Hopkins, FDR, himself.

#### Expressive Industry

Here is an example of the way he felt in the opening sentence of one of his missives:

"Due to the weather, my liver, the NRA, the AAA, the Wagner Bill, the Connery Bill, the Bankhead Bill, the Smith Bill, the Thomas Bill, the rubber dollar, the gold block, Japanese rugs, German bearings, the American Federation of Cotton Manufacturers, the Cotton Textile Institute, long draft, short traverse, high speed, slow rolls, big package, small production — I find that my temper is getting the better of my formerly sweet disposition and time-tested patience."

In other groups of letters, Colonel Springs, having reached the not astounding conclusion that sales vary in direct proportion to the square inches of fleshy female display, has dared to conduct such an advertising campaign embellished with appropriate language to match the daring of the artists. The result has been to set the staid world of textiles right back on its spindles. With a positive flair for "copy" himself, the Colonel has proved to be a hard taskmaster and evidently did some lengthy hiring and firing to get what he wanted.

#### "Shock" in Advertising

As an example of his own wit and contribution to the field there is his famous "callipygian camisole" ad. The author reveals himself as a member of that school of advertisers which believes that the product must be talked about and that advertisements must shock people into action. The success he has achieved may be judged by full-page writeups in "Time, Tide and other publications." Not a few letters have come from plain, everyday citizens with expressions running the gamut of everything from "Wonderfull" to just plain "Lousy." And, the Colonel reprints them with equal glee.

The heart of this book, as previously intimated, is the group of short stories. By these the book must stand or fall, and in this reviewer's estimate the book will stand and stand very well.

This, of course, will not be news at all to those who have read his short stories published elsewhere. Certainly the sum of \$6,250 (which the author actually received for a single story) bears proof of his ability.

If his linens, which this reviewer has not yet used (but hopes to), wear as well as these stories, then the reading and the sleeping public will be well directed to his wares.

#### Major Impulses

Sex, society, business and war are his subjects in about that order of frequency. The stories deal with advertising, an unreconstructed Rebel, a straight-laced publisher who learns better, stock market didoes, an inspired apologue, salesmanship (2), war and aviation (5), man after woman (2), society highjinks (2) and lastly, straight romance. The numbers, incidentally, indicate the frequency of treatment and it is quite some treatment to say the least.

One of the very best deals with a salesman whose "onerous" job it is to spend money on an out-of-town buyer in order to establish the goodwill and obligation preparatory to a big order. This gem is a classic.

The author writes in a style that may be described as light, breezy, comic, even zany. He utilizes O. Henry's genius when twisting plot and language. "Variety," he says, "is the spice of wife." Adroitly he refers to two kinds of mints — gol I and julep. "A man has his appendix and bank balance extracted."

#### The Man Behind the Book

Peeking behind the mask of the stories one does see a personality possessed of individuality, shrewdness, worldliness, realism and cynicism. On reading the first section of the book one would be inclined to say that it is geared for the author's friends, well-wishers and employees. After reading the short story section, this reviewer is happy to hail the book as a real bargain for a dollar and hastens to cast his vote for the Best Buck Book Buy of the Year!

GEL.

#### **Orleans and Covert Cloth**

TO THE EDITORS:

I have today received my copy of No. 8 (1948) AMERICAN FAB-RICS and find its contents as fascinating as ever.

But, I would like, if I may, to put your readers right on the subject of the old Orleans cloth, so fancifully and erroneously described as the prototype of the Covert in the brochure included on page 22 under the title of "The Romance of Covert Cloth."

It is true that a Manchester business man, one Joseph Barratt (not Barrett) was the inventor of the so-called Summer cloth, afterwards called "Orleans Cloth." Barratt was not a weaver, however, but just a merchant - converter, who placed orders with weavers and subsequently had the grey cloth dyed to his own specifications. He was in your country in the Spring of 1825 and was asked by his customers if something could not be invented for Summer coats more satisfactory than the Cotton, Silk and Worsted basting fabrics being used at that time for the purpose. One firm in Philadelphia (not the South) gave Barratt an order, conditional upon him producing something novel and satisfactory for the purpose in view and he returned home and got in touch with a worsted manufacturer with offices in Manchester about the matter. This manufacturer tackled the problem on Barratt's behalf and produced a plain cloth (not a Venetian as suggested in the brochure) which was shipped as a "Summer Cloth." Subsequently it was given the name of "Orleans Cloth." presumably because that Cloth," presumably because that was the Philadelphia firm's main outlet for the line. Some years later the West Riding of York took up the manufacturer of these cotton warp cloths and the first firm to make the "Orleans Cloth" in our district was Woods of Denbydale near Huddersfield. By 1837-1838 many Bradford firms were in the Orleans trade and were selling their productions overseas at prices varying between 40/= per price of 28 yards for the so-called 3/4s Orleans to £2 per price of the same length for the 6/4s Orleans. Springing out of this introduction to the West Riding worsted trade of "mixed stuffs" formed from cotton warp and worsted weft came the Mousselines de laine and subsequently Sicilians, Granadas, etc., were used for "Summer Cloths"; in these cases mohair wefts replacing the worsted. The Orleans cloth was really the forerunner of the Union Panama and definitely not of the Covert, which had a very different origin.

I am able to write with some authority on this subject as I happen to be associated with a company which has its roots way back in the first years of the 19th Century and its archives are at my disposal for checking up on these matters. Since it seemed to me a pity to allow statements which are not correct to go unchallenged I decided to write you right away in case you would like to let the advertiser, or your readers, know the facts in this particular instance.

Mr. P. Harrison Eccleshill, Bradford, England

# THE HISTORY OF THE AMERICAN TEXTILE INDUSTRY



ILLUSTRATED WITH CONTEMPORARY SAMPLES AND PHOTOGRAPHS

THE HUMAN record of the development of fabrics in the New World is truly the history of America. It is curious to speculate what might have happened had the ancients realized the true wealth indigenous to this hemisphere in their early days of conquest rather than seek for gold.

Columbus may not have died in chains if he had not believed that he had reached India because he had found cotton in the Bahama Islands. We might well be a Spanish-speaking nation had the Conquistadors encouraged the Indians to develop their famous cloths of cotton, vicuna, alpaca, llama and even chinchilla.

#### The Early Foundations

The weaving, dyeing and embellishment of fine fabrics were well advanced in the New World many centuries before it was discovered by Europeans. Lack of knowledge by its European exploiters caused them to lose far more than they had gained by usurpation and rapine. The story of American fabrics (without divergence along the main paths that history could have taken) is one that is a story of world changes. For example, the Portuguese DaGama opened a water route to India in 1497 to secure the cotton trade for his Emperor. Britain, in the 18th century (with the aid of a half dozen mechanics) wrested the cotton empire from the East within a short generation of inventions. Yet all these epic-making events were destroyed by a single Yankee invention which shifted the area of cotton cultivation in America to the territorial limits of the United States. The early growth of New England is truly the story of mill building and operation. The early development of the South is the story of fabulous cotton plantations and international commerce in the fabric with its attendant latent explosive - slavery. Today, by paradox, the mills of the South far exceed the mills of the East.

1 1 1

Here is how it was in the beginning. About twenty-five years after the first Massachusetts Bay Colony was settled in New England, there appeared this God-fearing and poignant appeal:

"Forasmuch as woollen cloth is so useful a comodity, without wch wee cannot so comfortably subsist in these pts by reason of could winters, it being also at psent very scarce & deare amongst us, & is likely shortly so to be in all these pts from whenc wee can expect it, by reason of ye warrs in Europe destroying, in a great measure, ye flocks of sheepe amongst ym, & also ye trade & meanes itselfe of making woollen cloaths & stuffs, be ye killing & othrwise hindring of such psons whose skill & labors tended to yt end, & whereas, through ye want of woolen cloaths & stuffs, many pore people have suffered much could & hardship, to ye impairing of some of yir healths, & ye hazarding of some of yir lives, & such who have bene able to pvide for yir children cloathing of cotton cloth (not being able to get othr) have, by yt meanes, had some of yir children much scorched wth fire, yea, divers burnt to death, this Cort—doth desire all ye townes—seriously to weigh ye pmises, &—indeavor ye pservation & increase of such sheepe as they have already, as also to pcure more—it is desired yt such as have an opportunity to write tto any of their freinds in England, who are minded to come unto us, to advize ym to bring as many sheep from thence as conveniently they can, wch, being carefully indeavored, wee leave ye surcease to God."

#### **Needs Dictates Character of Fabrics**

This was the nature of the manufacture of American textiles in America in 1645. The fabrics of that time were created out of necessity — a frantic need for clothing for household use. So it is not surprising that American fabrics of the Colonial era did not approach the skill and sophistication of foreign materials. They were utilitarian in character, admirably adapted to the primitive surroundings in which they were created and they tell of the strangest economic conditions under which they were developed. The British Government never contemplated the establishment of a textile industry in the American Colonies. In fact, the Tory Party adopted the attitude that the Colonies were merely dependencies whose sole function it was to absorb British manu-

facture and to furnish Great Britain with whatever raw materials she might need. For example, the growing of flax, hemp and silk was encouraged so that they could supply British mills, but Colonial manufacture was frowned upon since it might lead into competition or even economic independence, which had no place in British Colonial policy. For many years such occupations as spinning and weaving were known to the early settlers of New England, but this industry was not encouraged as long as British ships continued to dump their woven stuffs. In 1645, however, when shipping virtually ceased, a Massachusetts court issued what is thought to be the first order for Colonial cloth-making. Legislative records say that there was a need for domestic industry since New England was hampered by a lack of commodities to exchange for English goods.

#### Power Politics and Industry Development

On the other hand, the South had enormous tobacco plantations, a product which could be shipped to Britain for articles of European manufacture. Thus the planter who had observed the balance of trade found no necessity of clothing himself with cloth of his own making, so he turned his efforts from the silk vineyards and mulberry trees that were the original concerns of the early founders to tobacco. When over-production of tobacco and the bounty system attracted individuals to the manufacture of textiles, England kept her bull-dog eyes on Colonial activities and Colonial governors were required to file lengthy and constant reports on manufacture. As long as fabric manufacture was confined to the needs of the individual household, such industry was tolerated by the British Government, but when it grew to such proportions as to menace Colonial trade (as it did toward the end of the 17th Century) England immediately established measures restricting its further growth. It is natural that with such a background of rigid restrictions, that anything in the way of sophisticated industry could hardly be looked for. However, with the release from British fetters in 1776, the tremendous growth of American fabrics as a world commodity came into birth. Today it is fully incorporated in the economic life of America. Our ingenious mechanisms turn out materials practical in nature and still add decorative and sophisticated character wherever and whenever needed. It is interesting to note that among the restrictive acts that Great Britain passed to stifle American textile industry, was the Wool Act of 1699, whereby wool of any kind was forbidden exportation from the Colonies. Lord Cornbury, who had an eye to the future stated in 1705:

"Besides the want of wherewithall to make return to England, puts them upon a Trade which, I am sure, will hurt England in a little time; for I am well informed that upon Long Island and Connecticut they are setting upon a woollen Manufacture, and I myself have seen Serge made upon Long Island that any man may wear. Now, if they begin to make Serge, they will, in time, make coarse Cloth, and then fine;—how far this will be for the service of England, I submit to better judgments; but, I hope I may be pardoned if I declare my opinion to be that all these Colloneys which are but twigs belonging to the main Tree (England) ought to be kept entirely dependent upon and subservient to England, and that can never be, if they are suffered to goe on in the notions they have, that, as they are Englishmen, soe they may set up the same manufactures here as people may doe in England; for the consequence will be, if once they can see they can cloathe themselves, not only comfortably, but handsomely too, without the help of England, they, who are already not very fond of submitting to government, would soon think of putting in execution designs they had long harbourd in their breasts. This will not seem strange, when you consider what sort of people this country is inhabited by."

So much for the hampering political restrictions of early days. However, our inquisitive ancestors, in their first century of Colonial life, seized every opportunity to experiment with all the growing things they found which looked as if they could be useful—especially in spinning, weaving and dyeing. Sheep and flax



Juilliand's master fabric, 100% virgin wool—"Juillaire," is a worsted gabardine woven of black and natural wool to give a mixture effect in a pale greige tone. Featured by Pauline Trigere, Dave Bellsey and Garlane. Greenwood's Parka poplin has a dense weave of carded yarns which renders the fabric water resistant and practically impervious to air. For jackets, ski clothes and snow suits. Labtex: This rayon and acetate sharkskin has a crispness which puts it in the fashion category of the alpaca and rustling type fabrics so popular in soft styles. Featured by Prince Biederman of Cleveland and Joselli and Dutchess Royal of New York. Martin's versatile silk-back Lakme

velvet, which is available both in soft and crisp finishes, is now shown with an expressly created dull face. The crisp finish is eminently suited for the cool bouffant dresses and light suits. The soft finish is for the intimate apparel field in negligees, housecoats, etc. NATIVE: Soft-to-the-touch fabric is knitted on the Simplex machine and is generally referred to as being doubly woven. Made of Bemberg Matesa Yarn, it is sueded to a very lush finish. Used for men's and women's sportwear and accessories. Hockanum's 100% all-wool Barbara weave suiting is a worsted piece dyed which is featured by Harry Frectel, Dietsch, Wersba & Coppola and George Jablow.

were originally imported from overseas, for the finished cloth was costly. The women planted Bouncing-Bet and plucked scouring-rush for soap, and made dyes out of goldenrod, sumac, blond root, mapleback, pohweed and other native plants. From Indian women they learned the formulas used in making dyes for quill work and basketry. However, they could not make a red dye that equaled lac or cochineal, nor could they obtain a blue as fine as that from indigo or French Pastel. So they were forced to journey to seaports to obtain this material for the making of better fabrics. Wool was the first fabric fiber to be spun and woven into fabrics. Farms that were scarcely cleared came to be used to graze sheep while flax and cotton were carefully planted. In early Virginia, the Assembly encouraged manufacture of woolen cloths by offering a bounty of six pounds of tobacco to anyone who brought to the County Courthouse a yard of woolen stuff made in his own house.

## Early Weaving for Apparel

Since tobacco, at that time, was often used for money, miniature woolen mills flourished. However, our early law givers stated that five children of under thirteen years of age could only spin and weave enough cloth to keep thirty persons clothed. Since a suit of clothing lasted from three to five years and fewer garments were worn then, it can be readily seen that child labor was not encouraged in those days.

The first commercial mill in America was founded by Master Ezekiel Rogers at Raleigh, Massachusetts, in 1638. Zeke paid passage for more than twenty families of Yorkshire weavers who made fustians or "thickset" as it was sometimes called (thickset is a heavy corduroy), twill jeans from French cotton, and linseywolsey, a mixture of linen and wool, (which might be a distant cousin of our present Palm Beach Cloth).

A second mill was started by William Penn, who sought to encourage industry in Pennsylvania. So vital was the wool industry to the fabric-starved Colonists that laws were passed in which no sheep less than two years old was to be killed and the meat sold. If a man's dog killed a sheep, the dog's owner must pay for the slaughtered animal and must kill the dog. Every family was required to have at least one spinner, and girls in those days learned to spin just as they learned to sew and cook, as matters of necessity. (Continued)

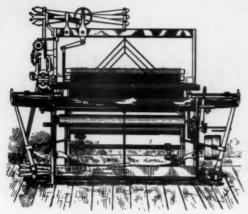


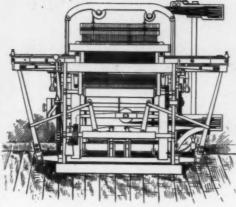
BURLINGTON CONCORDIA. One of a
group of rayon prints
which Concordia calls
Tile prints. Akin to tie
silks in feeling, sold
only over the counter.

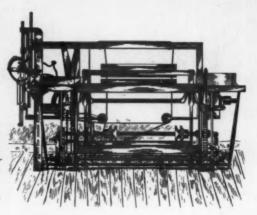
AMERITEX. Tintype cottons, look
like yarn-dyed woven fabrics, feel
like them and they handle like them.
The double printing done by Cranston matches both sides with split
thread accuracy. Unusual effects are
said to be obtained by this printing.

DAN RIVER. Representative of two important trends is this woven end-on-end chambray from Dan River Mills. The over-printing on woven cottons achieves additional depth of effect and permits use of popular tone-on-tone colorings. The fabric is woven of vat-dyed yarns and has been sanforized.

MALLINSON. Another creped finish
taffeta with new surface interest for
Spring. The pattern
is an original Mallind. son creation.







Looms for Fancy Weaving

U. S. Patent, Fancy Loom - A.D. 1849

U. S. Patent, Weaving Venetian Carpeting A.D. 1850

U. S. Patent, Fancy Loom - A.D. 1855

#### American Textile History (continued)

The early spinners and weavers were of two categories. Entire families from cloth-making towns of Europe emigrated with the knowledge of the industry and settled in America with the idea of becoming mill men and clothiers in the new settlements. Second classification came from Scotch sheep farms, North Irish hamlets, English villages, German, Swedish and Welsh homes, who had worked fabrics for generations. The wives wove, cut and made the clothing for their entire families. These people showed such thrift in industry that men with money invested it, hoping to improve our fabric manufacture so that we would not depend on England even for fine linens and woolens. There was a fulling mill in Massachusetts in 1654 and (as Lord Cornbury remarked) "there was fine serge in Long Island" from 1705. Fulling was generally done by beating the cloth with heavy wooden mallets. Fuller's earth, a peculiar mineral, was used to take the oil or grease from the cloth, the object being to shrink the cloth and make it firm by heat and moisture. Originally the word was French, "fouller" meaning to trample, and it was done by the bare feet of the workers. The surnames "Fuller" and "Walker" are derived from it.

#### **Early Fulling of Cloth**

Imagine a pioneer home where the home-mother came from some Gaelic croft. She would show the girls of the family how to comb, sort and spin the wool, how to make home-made dyes, how to weave and "wauk" it. She might well do this singing the Oran Iutalk, an ancient Gaelic song that girls sang while "wauking" the cloth. Imagine, then, taking the newly woven fabric to a rushing mountain stream — they washed it by trampling the cloths with their bare feet in tubs of hot soap suds perched over heated stones. Then eight or ten of them sit on the ground in two

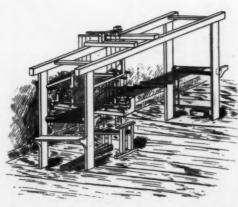
lines facing each other, the wet cloth stretched between them on a long hurdle. They toss it and trample it skillfully between their feet, singing the song until the work is done. A continental traveler coming upon such a company of girls singing and "wauking" with all their might would well think them crazy, but that is what the Lizbeths and Anns of America did before fulling mills were built.

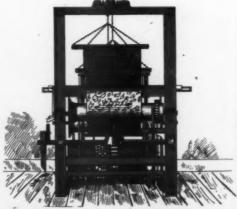
Another task which had to be done by strong hands out of the home was "teaselling." This process raised the fibers to an even nap by scratching all over with weaver's thistles. It was then dyed and spread on the tenterfield and caught on "tenter-hooks." Today we use the expression "caught on tenter-hooks" which means to be in suspense or under a strain.

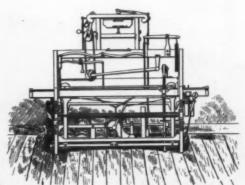
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American fabric manufacture was given a further surging impetus by the embargo of the War of 1812. New England Colonists were forced to manufacture goods they could not buy. As a result, an increase of constant and varied home industries developed important character in the boys and girls of that period. They learned to make things with their hands and find all sorts of interest in varied subjects. This youth movement affected North and South alike. This generality may be exemplified in the story of Eliza Lucas.

Eliza Lucas was a girl of sixteen who took complete charge of her father's plantation, "Wappoo," in Charleston, South Carolina, while he was absent as Governor of Antigua. Her mother was an invalid and could not live in the tropics so Eliza stayed home and ran the plantation according to letters her father sent her. The agriculture of the South, at that time, was based upon its export for cash money. Rice was raised on the coast where it was damp and warm, and rice could stand a long sea voyage, but rice would (Continued)







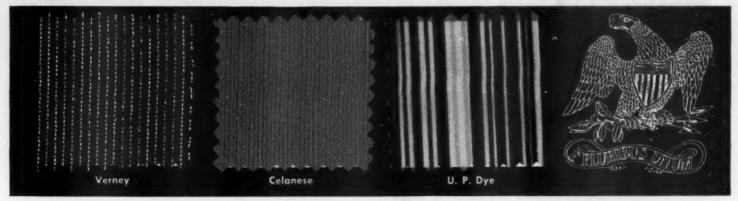
Drop Box Movable Shuttle Boxes - A.D. 1760

U. S. Patent, Weaving Figured Goods - A.D. 1812

U. S. Patent, Fancy Loom - A.D. 1843

The term "fancy loom" is used to designate such looms as produce figures in the weaving. The fancy loom, which is known and used in all countries, was invented by Wm. Compton, of Worcester, Mass., in 1836, and was patented the following year.





Verney's "Sheer Brillante"... combining the traditional coolness of an all-Bemberg Sheer with the luxury of Dobeckmun Lurex, for blouses, negligees, daytime and evening dresses. Celanese: "Cornstalk," a novelty weave fabric of Celanese acetate and silk (approximately 85%-15%). Soft to the touch, yet rough appearing, with high textural interest. Made of Celanese splash Boucle yarn, this fabric is presented as a Celanese Creative Fabric, UNITED PIECE DYE WORKS: Cohama imported washable "Feather Silk." It is roller printed with vat print colors and finished by U. P. Dye of Lodi, New Jersey. This printed pattern achieves maximum color value and vividness. For dresses, blouses, etc., and for over-the-counter sales.

#### American Textile History (continued)

not grow on the uplands. Neither would cotton — that is, cotton of a grade which could be acceptable for manufacture. So Governor Lucas thought that indigo might be raised there. Indigo was practically worth its weight in pearls.

One day Elizabeth Lucas received a tiny package of indigo seeds, together with a letter giving her instructions for its planting and growing from her gubernatorial father who sent them from Antigua, one of the few places in the world where indigo was raised. The first tiny crop did well and went to seed. The young mistress of Wappoo gave seeds to any planter who promised to cultivate it by Spring. Since indigo sold for \$50 a bushel (about \$300 in value today) quite a few planters were interested. After three years enough indigo was raised to begin making dye. Lucas engaged two brothers by the name of Cromwell, native Antiguans, to take over the dye-making. They built vats, cut the leaves at the right time and set them to soak, and watched the liquid froth and ferment day and night so that exactly at the right time it could be strained into a second vat and beaten with paddles until thick. It was then redistilled and dried in the shade and molded into tiny tablets for commercial use, but the dye proved to be a failure.

Nicholas Cromwell claimed the trouble came from the climate. He made all sorts of excuses, but Eliza was ready with cross-examinations and when he contradicted himself several times she fired him on the spot. With her own helpers she made a second batch of dye which was a perfect success! After the success was proven, Cromwell admitted being privately paid by British planters in Antigua to keep South Carolina indigo out of the mar-

ket. Indigo became so successful that the first free school in South Carolina was established and maintained out of the profits of this trade. As a point of human interest, Elizabeth Lucas married a Mr. Pinckney and mothered Charles Cotesworth Pinckney, who is remembered for his famous American saying, "Millions for defence, but not one cent for tribute." Our ancestors could thank Eliza Lucas Pinckney for her contribution to American fabrics.

In 1768, enraged by England's policy of keeping the Colonies from making or exporting anything but raw material, the graduating class of Harvard College agreed to graduate in homespun suits. About this time, a young officer in the French and Indian War called George Washington declared his militia men must be camouflaged in homespun uniforms rather than the gaudy red coats of Braddock's Regulars. For his own garments, he even carved the horn buttons which fastened them.

#### American Inventions In Full Swing

With the conclusion of the Revolution, American inventive genius came into full swing. The most famous of these inventors, of course, was Eli Whitney, who invented the cotton gin. Prior to his invention even expert workers could not clean cotton fast enough to make it a profitable crop. But when Whitney created his Cotton Engine or "Gin," cotton cultivation in the South became the most important item of its economic system.

George Washington had an aide-de-camp and close friend in one David Humphreys, a Connecticut Yankee, who firmly believed he could create a factory for weaving American broadcloth as fine as that of England. While he was Ambassador to Spain he im-(Continued)



CLARENCE BROWN: Woven by Ponemah, converted by Clarence Brown, "Tambura" is a beautiful sheer cotton check, made of imported yarn. Wide range of colors from fresh pastels to vibrant deep tones. Stronger than the average batiste, due to the fine yarns used, this gossamer fabric will be a delight to women when the sun really begins to sizzle. VANETTA VELVETS: The name of this 16-rib Vanetta pinwale is "Duro-Cord." Has proven itself washable and very durable. Used for children's, women's, and men's apparel. It is also sold over the counter. GALEY & LORD: A small iridescent plaid which is reminiscent of "The Age of Elegance." The purple and deep turquoise swagger gingham is featured by Caroline Schnurer. For over-the-counter sales, also.

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A Patented Cotton Picker - A.D. 1855

### American Textile History (continued)

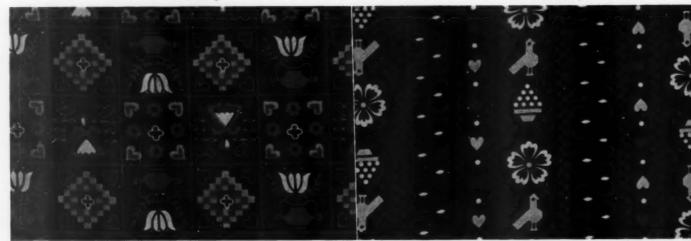
ported Merino sheep from that country to cross-breed with American sheep and thus improve the fleece. He returned to this country, founded the Village of Humphreysville in Connecticut and built a factory there. In this factory the cloth was woven for the coat which President Madison wore at his inauguration in 1809. Humphreys was a progressive and abhorred the dreadful conditions existing in the weaving cities of Europe. He hated child labor and believed in the rights of the working man as a human being. Accordingly, he founded a school for the children of his employees and hired fine teachers for them. He and some friends put through Connecticut legislation providing that every child of school age must attend school a certain number of days in the year. His friendly competitors saw the wisdom of his plans and followed



Cotton Planting

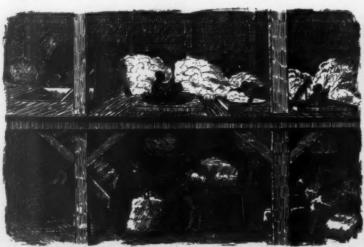


Cotton Hoeing



PETER PAN (Henry Glass): One of the series of "New Colonies" calicos by Peter Pan Fabrics. The quaint pattern was inspired by early English china circa 1760. For dress wear, sports, for every age group, this revival in calicos is an important part of today's fabric picture.

BATES: This quaint-as-quaint-can-be Pennsylvania Dutch print by Bates employs small, vivid touches of color which are as bright-as-buttons winking gaily from a jet-black background. For over the counter and for ready to wear for all age groups.



Cotton Packing



Cotton Shipping



STOTTER SILKS (left above) "Hieroglyphics," a design by a French stylist, captures on a fine silk fabric an impressionistic story of ancient civilization. CELANESE (right above) *Printed Celacruise*. This fabric is a stabilized stitch tricot-knit fabric which resembles a woven rayon sharkskin in appearance,

them. As a result, a single generation later we find that Connecticut had more textile mills in proportion to her population than any other state and had a literacy record of only one illiterate adult out of 568, a greater literacy average than is maintained in the United States at the present time.

Events in the manufacture of American fabrics moved with haste and precision after this time. Samuel Slater, a young Englishman of 22, came to America in 1789 looking for capital in the new republic to invest in cotton spinning. He linked up with Moses Brown of Providence, who had been experimenting with cotton-making machinery. Brown had met with little success because England would not permit machinery or models used in cotton manufacture to leave the mother country. Slater told Brown that he could build a machine from memory and he did, one of the important details which he could not remember coming back to him in a dream! Together they built the first mill at Pawtucket, Rhode Island, where a waterfall of fifty feet gave them good power. Since most traffic was by water, the fact that Pawtucket was near the sea was equally important.

#### Cotton, Linen and Wool in New England

Three years later the first linen mill was built at Fall River. Although there was little mention in the records, these are the fabrics that were turned out at the early part of the 19th Century . . native printed cottons in dotted patterns were turned out in Rhode Island; Massachusetts duck and canvas was woven at Boston, Haverhill, Salem and Springfield; wool was manufactured at Byfield. In 1803 the first cotton factory was built in New Hampshire at New Ipswich. Cottons, linens and woolen cloths were being spun and woven in the homes or by local weavers in all of the thirteen original States. However, in the lower counties of Georgia planters began early to buy clothing from Northern factories for their slaves. New Hampshire wove "tow-cloth" for this market. When the tumult and the hubbub of the War of 1812 ceased, a new clamor arose for power factories using water power for the manufacturing of fabrics. Where a swift rush of water was assured there was a good mill site. Legislative measures appeared to further the new and growing industry.

Contrary to popular belief, when Calhoun and Clay promoted a protective tariff in 1816 it was opposed in New England. Webster orated against it and as late as 1840 Southern Congressmen attacked New Hampshire for favoring free trade. The people of New England were of the opinion that a mushroom growth of manufacturing cities would not be good for this country. Many of the population of these towns were scarcely generations away from the prevalent abuses of English manufacturing towns and did not want this system to get a toehold in America. All admitted it would be a marvelous idea if factory towns could be built and directed with the following things eliminated: in England men

Dorset (right below) Bel-Air; an all rayon, high count pigment crepe with an exceptionally soft, supple hand. It is featured in an unusually varied range of patterns. This particular print is noteworthy for its unique use of a tone which gives the illusion of gold when combined with the various pastel grounds as blue, mauve, pink and others. Fluegelman (left below) Surf

crispness, bulk and dimensional stability. It combines the attributes of a knitted fabric such as high porosity, easy drape, wrinkle resistance and packability. Printed and plain, it is suitable for active sportswear and beach ensembles. Currently sold by Celanese Creative Fabrics Division.

worked in cotton mills for sixty-nine hours a week and were paid about \$2.75 a week. Women worked for \$2.00 to \$2.25 for the same number of hours and children for less. A factory girl never had a hat or coat — wore a shawl instead. Her shoes were wooden soled leather clogs, and over her skirt she wore a long linen apron tied with tapes from her chin to her ankles. Whole families had to labor in order to pay rent and buy food and clothing and they had to live within walking distance of the mill in order to exist.

#### Child Labor in Early 19th Century

In what is termed a "humane factory act," William the Fourth signed a bill in 1837 which forbade children under eighteen to work more than twelve hours a day or to work between 8:30 at night and 5:30. Children under nine could not work at any mill except a silk mill.

It was this sort of slave labor market in which America had to compete, but men like Lowell, Appleton, Lawrence, and Humphreys believed in the future of American fabric manufacture and sought to make it come true. By contrast, in 1840 an American could bring up a family and save money on less than \$2.00 a day, which he did earn. No city was so big that he could not walk to work and still have a house, a garden, a cow, a horse and chickens. Immigrants who worked in the old country for less than ten cents an hour were paid \$9.00 a week or more in America. Since his total board and lodging amounted to \$2.00 a week, he found America the land of golden opportunity. Girls working in American mills lived on a plane that amazed Charles Dickens. In his "American Notes" he says that if any of his readers think these girls are living above their station, he would like to know what their station is. Some of the things that Dickens found almost unbelievable were the facts that he saw factory windows full of growing plants and vines; pianos, harps and other musical instruments; circulating libraries; free hospitals; and savings banks showing thousands of mill girls as their depositors with accounts averaging better than \$100.

#### As the Authors Saw the Situation

Dickens later goes on to say if their station is to work, they did work twelve hours a day. In violent contrast, Frances Hodgson Burnett, who came from Manchester, gave us a vivid portrayal of the British manufacturing city as it was in those days. "All the human frame work of the great, dirty city was built around the cotton trade. All the working classes depended on it for bread. All the middle classes for employment, all the rich for luxury. The very poor, being awakened at four in the morning by the factory bells, flocked to the buildings over which huge chimneys towered and rolled their volume of black smoke; the responsible fathers of families spent their days in counting-rooms or different departments of the big warehouses; the men of wealth lived their lives among cotton, buying, selling, speculating, gaining or losing in Cotton, Cotton, Cotton." (continued)

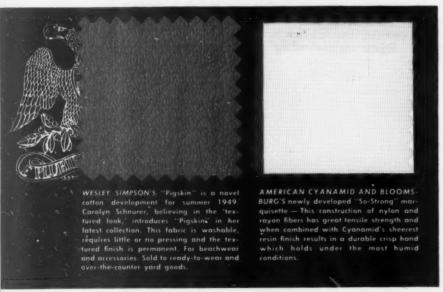
Club Prints in printed waffle pique, are used for outer apparel for both misses and children in dresses, sportswear, bathing suits, play clothes and house-coats. This particular pattern was evolved from a picture of a sleeping Mexican boy behind whom a group of flowers was growing, giving the feeling that the flowers and the boy were all one.



#### American Textile History (continued)

The Civil War cut off the supply of American raw cotton and ruined many English manufacturers. The Burnett family was so reduced in status that they had to move to Tennessee where the little girl who later wrote the above lines went wild with joy at the sight of trees, rocks and flowers, unsmirched by soot and smog.

This idyllic condition could not long endure. Word had spread through England and the Continent that America was the land of golden opportunity. Between 1840 and 1850, while over a million and a half immigrants tried to become absorbed in her population of about seventeen million, nearly twice as many came to these shores. The Scandinavians and Teutonic immigrants went West, giving



rise to a vast cattle and sheep industry, but those from the British Isles drifted by the thousands into growing mill cities. Machinery was so simple unskilled labor could handle it. Problems arose. The manufacturer was the only loser, but with the advent of mass immigration and steam power the picture changed.

This time a greater unrest was irking the nation as a whole. The political views and the convictions of the North and the South were at loggerheads.

It is important, however, to correct an impression erroneously planted in our minds in early school days. This impression was that before the War of States, cotton manufacture was the main source of revenue in New England and it has been said that New England States were dependent on the slave-raised cotton. Statistics prove this idea far from true. In 1860, when more New Englanders were employed in factory work than ever before, less



than half a million of the New England population of over three million were thus employed. At that time there were more cotton mills in Massachusetts than any other State in the country. Yet less than two per cent of her people were engaged in the manufacture of cotton goods, and a similar proportion of her capital was invested in this industry. Wool and worsted manufacture amounted to approximately the same percentage. A State certainly cannot be called "dependent" upon any industry in which only two per cent of the people are occupied.

#### "Shoddy" Comes Into Being

As we previously stated, the immigrant mill workers coming to American in hordes changed the factory picture completely. Statistics of 1875 show that the English family in a mill town earned about \$250 a year and was unable to save a penny. Going to Massachusetts, he earned \$475 and found better living conditions than he ever dreamed possible. Naturally, his relatives in the old country heard about it and so the lemmings started to overrun New England towns. These immigrants could not farm, their wives and daughters knew little of cooking, mending and even cleaning. The usual meal of the mill worker was bread, meat and tea. As more and more unskilled labor saturated the market, the eastern States became largely overrun. After the Civil War, the demand for manufactured products was so great that any man with a few dollars could start a factory and get rich. Unscrupulous management in the woolen mills used this cheap labor to weave old rags, old carpets, discarded war-time uniforms into a bastard cloth which was not worth even the cheap price at which it sold.

This cloth was known as "shoddy." The word has remained to stigmatize anything cheap and worthless. Today, the magic of our laboratories has enabled us to create regenerated fibers into superlative fabrics, but this knowledge was missing in Lincoln's time.

With the supply of labor many times greater than the demand, the employer, motivated solely by greed, could say "you take what I offer in pay or I get somebody who will." These owners were of a different breed than those who had originally founded the textile industry in the United States. The advent of power-driven machinery necessitated vast expenditures and investment of capital. This capital came from large cities like New York, Boston and Philadelphia. Practically all of the investors had never seen a factory nor visited a mill town. Theirs was strictly a matter of impersonal investment with no concern for the mill workers.

#### Mill Situation Worsens

This exploitation of labor led to a great discontent among the native mill workers who objected to the degenerate standard of living that occurred among the new type of factory immigrants. Prosperous towns became squalid settlements with hastily built tenements, or old mansions or other buildings turned into tenements. Whole families lived in one or two rooms. They breakfasted on bread, molasses and strong tea — at noon this was leavened with a slice of stringy beef or strong cheese. In order to earn more money they evaded child labor laws and put their children in the mills as early as they could. Soon an endless vicious cycle formed. The ignorant made the slum, the slum kept them ignorant and ill-paid.

This condition made the former factory worker, who had hopes of opening his own home and finding social security in factory work, seek other fields of endeavor. It also drove women out of the factory. These women drifted into needle trades, shop keeping and even did home work.

"Bertha the Sewing Machine Girl" became a figure of song and legend. Some farsighted people who had studied English conditions realized what was happening in America. They enacted labor laws, child labor laws, sanitary laws and building laws, but these were avoided by the workers, who figured that it was a waste of time and a bother. Disease became rife in many communities where factories polluted the source of drinking water.

(continued)



RENOIR'S cotton-taffeta is made of long staple, fine combed cotton of very high count. Woven by Ponemah and converted by Renoir it has a rustling hand and natural sheen.

BIANCHINI FERIER'S rayon print in which Crepe Adorable is utilized as the ground
upon which the design has
been applied by hand. Treated
with Bianchini's famous
Fiberset process.

MALLIN SON'S delightful and superbly designed
Frog pattern featured on a creped
taffeta of definite surface interest.
Motif itself is of French origin.

SHELHAR'S wide
silk shantung of Dupioni yarn comes in
a series of new
shades and is featured by House of
Kunel.

American Textile History (continued)

All during this time great studies were being made in improving machinery and systems of operation. At first nobody realized what would happen as a result of this progress, but suddenly farmers, housewives and mechanics who were working more than ten hours a day saw no reason why factory hands should not do likewise and since children worked on the farm, why not children in factories. They would not favor social legislation. They did not realize that their work was controlled solely by their own movements and desires and that the worker at a power machine had every movement dictated by that machine. They could not understand the tax on nerves, the noise, the vibration and other hazards that made for occupational diseases. They did not realize that they were breathing pure, clean air, while the factory worker, even in a well managed factory, breathed in dust, lint, fluff and the vapors of hot oil in a temperature that sometimes stood all day at 120 degrees.

Capital and Labor

At the beginning of the 20th Century, capital seemed to realize that it was responsible as a class for the well-being of their employees . . . thus the American ideal was reborn.

While machinery and methods were improved, the human element was hard put to take care of itself. However, the American working men had one advantage over those of other nations. They could vote! It took a long time for them to realize the power of their ballot. (On the other hand, even under benign conditions, many workers were too lazy and ignorant to take advantage of the devices put in for their comfort and protection. Birth certificates were falsified so that children could work in the factory. Workmen neglected safety devices because they were a bother.) It took a great catastrophe to make the forces of law and order apply to both capital and labor, as well. This tragedy was the dreadful fire in the Triangle Blouse Factory in New York. A cigarette stub, carelessly dropped into a pile of waste under a cutting table, started a raging blaze in the upper two floors of a ten story building. Hundreds of people were immolated in the fire trap. It took this dreadful event to make insurance companies put a clause in policies against smoking in workrooms. It made legislators pass laws against locking doors at the foot of stairs or having them open inward. At this time American labor unions began to make themselves heard in a really big way.

#### **Effects of Fashion Changes**

At first labor had a difficult time of it because most of the factory hands were women and children for whom employment was only temporary and these had no desire to join unions. Next, French-Canadians replaced Irish and British in many of these mills. These workers had only one aim — to earn a nest-egg and return to Canada. Naturally they were not interested in joining unions. However, the vagaries of conditions where neither employee nor employer could tell when lay-off time came, gave impetus to the union movement. Taking a leaf from the early English trade unions, organized labor was able to inform its cohorts of conditions elsewhere in the country when lay-off time occurred, so that the itinerant workers did not have to spend all their savings trying to get work elsewhere. One of the peculiar phenomena that brought about this migration of workers was the rapid change of fashion. Fashions changed so quickly that entire plants were shut down over night when a style changed. For instance, paper collars were a vogue for a year - then suddenly they disappeared. A single New York factory employed over 800 workers and turned out two million a day. When the vogue died, these people were out of work and the machinery, invented to produce paper collars, was discarded. When a dressmaker made a gown of fine silk or wool with rows of pleated flounces draped over the skirt and a pleated under skirt, it was fashion. But as soon as the costume was copied in cheap alpaca or imitation challis, which looked ridiculous, a new style had to be created immediately.

These changes affected the entire population because machinery was not adaptable and had to be discarded when new styles came into vogue. For example, hoop skirts vanished in a season, the braided bottoms of skirts became obsolete over night, laces on neck and wrist, which had been painstakingly made by hand and worn for many seasons, were discarded for ruching which was worn once and then thrown away. All branches of clothing manufacture were in a constant state of uncertainty. Hand work and peasant skills were too costly for the mass market and thus the worker, who was constantly thrown out of work or poverty-stricken by a cut in wages, demanded cheap, ready-made goods which wore out quickly and were not worth mending.

The change of the century brought about the change of thinking. Men of integrity and intelligence studied these problems and found solutions to them. Enforced modern educational methods changed the habits and thinking of all classes. It emancipated women and so did away with freakish styles and worthless goods. Girls went in for sports, they participated in many things formerly barred to them. The simple tailor-made suit, the shirtwaist and other items of this nature that were worth making came into being.

The advent of electricity eliminated dirt and dust that made mill work a nightmare, and soon light, airy and healthy factories and shops arose. It also created manufacturing centers in the South and West. Legislation was passed in many States that raised the child labor age from fourteen to sixteen. Capital found it did not lose money by this legislation since they got more efficient work and better protection out of more mature labor.

#### Capital and Labor Together

The stress and strain caused by vibration and other occupational factors, were somewhat alleviated by diversions such as social clubs, bands, bowling teams and other recreations that relieved the mental stress and strain of the factory hand, made him less likely to drop into a corner saloon to get a "tonic" for his nerves. Capital met with organized labor and came to the conclusion that the factory worker was a human being entitled to humane consideration and thus a new era was born.

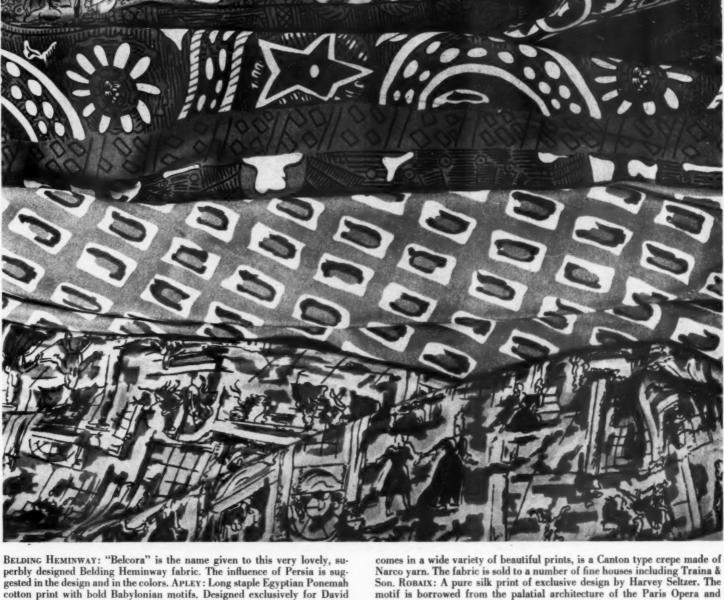
This continued progress kept pace with the growth of our country. It opened a field of exploitation to the chemist who sought to create new materials in the laboratory. For example, until 1875 there was no real water-proof clothing — people wore great coats of heavy cloth or shawls in bad weather, but nothing was devised to keep clothing dry in a very bad storm. Goodyear succeeded in making overshoes of rubber, but the first rubber raincoat did not appear until 1890, when the mackintosh, a rubber-treated cloth coat, was invented. While this was a heavy, cumbersome affair, it became a forerunner of the gossamer-weight rainwear of today. Silkworm fiber was studied and re-created in the laboratories as rayon, Nylon and other artificials which are commonplace today.

#### **Textile Age of Miracles**

Chemists also made great improvements in dye stuffs, so that now we can count on color fastness even in the cheapest of materials. Science has done many wonders in the textile field. It has made use of materials that were formerly wasted. It has created new materials out of fantastic products. It has also invaded the field of management, showing that a scientifically-run factory is extremely profitable if the workers are well taken care of. Lunch and recreation periods, etc., are not merely a pampering of workers, but actually good common sense on management's part. Thus the age of textile miracles come to be born. From an eminent source we quote:

"The coming textile age is an age of miracles. Textiles are being invented that will not shrink, crush, fade or wear out. They will not burn, soil or mildew. They can be made to glitter or be dull at will. They tailor well and hold their shape or drape gracefully. Thin fabrics have the rigidity of steel and there have been rugs made which can be drawn through a wedding ring. The laboratory strains every facility to create counterparts of natural





Crystal for use in Izod shirts and dresses. Foreman: "Chattertwist," which

fibers that will be better than anything Nature ever created. Rayon and Nylon are here to stay, plastics are increasing in use, yet few cotton or woolen manufacturers today fear any basic disruption of the industry by competitive fabric innovations in years just ahead. There is room for both. For example, the rubber industry which consumes tremendous quantities of textiles is switching rapidly from the formerly favored cotton to rayon for tire cord, but on the other hand, cotton yarns and fabrics are being increasingly demanded for rubber footwear, raincoats, belting, etc.

It is only natural that the textile industry, through progress,

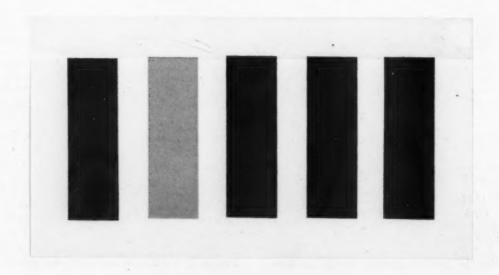
Narco yarn. The fabric is sold to a number of fine houses including Traina & Son. Robaix: A pure silk print of exclusive design by Harvey Seltzer. The motif is borrowed from the palatial architecture of the Paris Opera and features minuet figures. For over the counter selling.

has shed the stigmatic implications engendered by the dark ages of American factory history. The textile worker of today is a skilled artist and artisan. There are special technological schools, to help him go as far in the industry as he is capable of going. Capital, as well as labor, has heavily invested in these institutions to insure the textile worker an educational background comparable and often exceeding those of any industry.

With the entire world to clothe and to furnish the textiles necessary for modern life, the American textile industry can look forward to a future era of continued evolution. - M.A.W.



"The White Tablecloth," by Jean Baptiste Chardin. Courtesy Art Institute of Chicago.



# letters to the editor

To THE EDITORS:

'I have been an ardent admirer of AMERICAN FABRICS since its inception. My reasons for this are twofold. First of all the beauty and good taste with which AMERICAN FABRICS is put together is gratify-ing to one who has followed textile publications in the past. Secondly, the field of topics that is covered by your magazine is something entirely different than has ever come to my attention. I must say, though, that there is a very important field that is either on the drafting boards for the immediate future, or else overlooked. The field is one that has sprung up in a comparatively short period and has taken a major place in the textiles of today. Actually it is not a true textile, yet I feel that it should be considered as such in your magazine. I am referring to plastics; the printing and processing. I am sure that you and your staff will attempt to bring this new phase of the industry to the readers of AMERICAN FABRICS. I shall be more than delighted, as will others who share this interest in plastics.'

**Burton Lyons** New York, N. Y.

Articles on Plastic Textiles are in preparation for future A.F. issues. — Ed.

To THE EDITORS:

think AMERICAN FABRICS is one of the finest jobs of its kind that I have ever seen. It is a great contri-bution to the industry.

Sincerely yours, David Nemerov Russeks Fifth Avenue, Inc.

TO THE EDITORS:

"I find all the students in my employ are buying the magazine to keep for reference and I trust it will be widely circulated among the schools. You have made AMERICAN FABRICS the outstanding magazine in America today."

Zelina C. Brunschwig

Brunschwig & Fils New York, N. Y.

TO THE EDITORS:

"How proud you must be of this No. 8 edition. Not only is it a most beautiful magazine but so much has been put into it that would take one person a long time to do so much research for. My husband and I are thrilled with the magazine.

Elizabeth Chipman Ward Framingham, Mass.

TO THE EDITORS:

Enclosed please find a photograph showing an Australian mannequin wearing a fabric featuring Rita Hayworth and Glenn Ford. I am quite sure that this time we have a very topical angle on Textile Design and the release of this fabric sign and the release of this lability will be in April co-inciding with the Premiere of the film "The Loves of Carmen." All Usherettes of the Australian first-rate theatres will be wearing this fabric.

The cloth itself is woven from American Viscose yarn 35 denier, 30 filament and this, we feel, is also of interest to you. We, naturally, are subscribers to the publication AMERICAN FABRICS and we can only say that your work is highly appreciated in this country.

We remain, Prestige Limited Melbourne, Australia. TO THE EDITORS:

As you are experts in the field of fabrics, I would like to inquire about some new linens in which the dampness has set in. Although I have thoroughly dried them. would you advise me to wash them to take out the odor associated with dampness? Is this dampness deteriorating to fabric? Thank you very much for any advice that you can give me. Helen Praisner, New Bedford, Mass.

## CORRECTION

THE EDITORS:

On page 120 of AMERICAN FAB-R Cs, No. 8, 1948 . . . the painting illustrated is a small section of the long Japanese scroll entitled the Burning of the Sanjo Palace, 13th century.

Kojiro Tomita, Curator Museum of Fine Arts, Boston, Mass.

To THE EDITORS:

On page number 120, under the eading "Pictures" I note the capheading tions read: Above, Chinese Landscape. Below: Chinese Warriors. Courtesy Metropolitan Museum of

The caption for the above picture is correct but, the caption for the below picture is incorrect. As a collector and authority on both Chinese paintings and Japanese prints, I must bring to your attention that the below picture on this page is not Chinese but decidedly Japanese.

If the ones who dummied up this form were familiar with these two cultures, they would have had several clues to tell them this. For example the Arms and Armor are clearly shown as Japanese as well as the horse's trappings and stir-

James A. De Nina, N. Y. Our acknowledgement and thanks to readers Tomita and De Nina.—Ed.

TO THE EDITORS:

I am enclosing a copy of a letter which I have written to B. W. Mayer Ltd. concerning their neck-tie advertisement in the New York Sunday Times, which I am sure you will find interesting.

Arthur Upham Pope Chancellor, Asia Institute, N. Y.

B. W. Mayer Ltd. . . . 1 noticed your advertisement in the New York Sunday Times regarding cravats called "Croydon Cravats," in which you speak of these French-inspired designs. As a matter of fact, some of these are Persian. In the center one the flower spray is Persian and is taken from a plate in the SURVEY OF PERSIAN ART which we published; plate 1048A. It was also reproduced in

Editor's Note: The fabric shown in the photograph at the bottom of page 146 is NOT in the collection of Berta Frey. It is an example of early American weaving by an un-known weaver. Luther Hooper was an outstanding weaver of England who has died only in the past five years or so.

AMERICAN FABRICS, page 99. The Border of the cravat at the left is also a pure Persian motif, as is the border of the link half arabesque blossom leaf on the piece at your right.

There is available here for your

Left: B. W. MAYER TIE DESIGN.... right, Pensian ART MOTIF.

designers some enormously rich material; not only do we have by far the most magnificent exhibition of Indonesian Art ever seen in America, with hundreds of superlative fabrics, but in our various archives of drawings and in the Survey of Persian Art with its 5000 illustrations - there is an enormous mass of material available.

In general, the superiority of textile designs in Austria, Italy and France, and even in England, is due to the fact that the designers are in constant contact with, and frequently severely trained, in classical textile ornaments; whereas our textile designers try to think up bright ideas mostly on their own, and the results are too often trivial and superficial. The fact that your designers, and the designs that you are using, have a little wider reference, encourages us to think there is someone tn this country who knows the importance of tapping fresh sources of pat-terns, and in this case the Orient has been the teacher of the world from the beginning of time. . . . A.U.P.

To THE EDITORS:

Will you please send me 15 copies of reprints of "The Reporter Apparel Textile Dictionary" at \$1.00 per copy. I enclose check for \$15.00. These are to be used by the men registered in a course in the Selection and Purchase of Macco These week. Men's Wear. Thank you.

Margaret Humphrey Cornell, Ithaca, N. Y.

## "THE SYMBOL OF THE ROSE IN TEXTILE DESIGN"

by John Kent Tilton, Director The Scalamandré Museum of Textiles



The highly stylized roses and leaves in the contemporary textile (left) printed by the silk screen process were derived from the painting "Incoronazione" by Sandro Boticelli, in the late 15th Century. Note the modern approach in which the artist painted his roses at top of picture, all so faithfully rendered in the modern textile version.



Modern Screen Print

AMONG the favorite floral motifs for textile designs, no other flower has ever achieved and held first rank so consistently down through the ages, as has the rose. The search for historical background has always afforded research workers a fascinating journey into the past. Delving into remote times, we find that the ancestor of the luxuriant double rose we know today was a small simple flower. Some of the very oldest textile remnants, preserved in our museums, show flat petaled motifs that represent the rose as it was portrayed by the early weavers and its development has kept pace with the advancement of civilization. It is true that at times the rose is difficult to recognize in these early floral designs, but nevertheless it is there, woven in a primitive and highly stylized form. When we are told by botanists that there are over 250 different varieties of the rose, one is not surprised at its versatile form and appearance in design.

In the early days of Christianity, when the followers of the new form of worship were persecuted by the Romans, they adopted a secret

code of symbols, among which the rose was prominently represented in their religious insignia. It signified charity and Christian love for fellow men, besides being the symbol of the Garden of Heaven and God's Heavenly Grace. Ever since that time, whether in literature, poetry, painting, weaving or wood-carving, its place in history has been assured.

In the Graeco-Roman era of the 3rd Century we find roses embroidered on the borders of tunics. Chinese silks of the Mongol Empire in the 14th Century also favored the rose in squares and medallions, which Europe adopted and called "rosettes."

It was not till the middle of the 15th Century, with the Turkish conquest of Constantinople, that the Roman Emperor Constantine introduced silk to the Western World. The Turks, as well as the Persians, were experts in weaving and it is not surprising that this city became renowned for its silken textiles. Arabic designs used in conjunction with those of the Occidentals created a composite blending of the arts of the East and West and floral designs superseded the animal forms, which passed out of fashion at the end of the 15th Century. The rose became one of the most popular floral motifs and was frequently woven in a conventional form of an ogival-hexagonal motif. We again discover the rose in the early 15th Century of the Italian Renaissance, by which time it has lost its symbolic meaning. It



18th Century Lampas

An 18th Century lampas of the Louis XV era inspired from the paintings of Watteau. Silver-gray satin background has French blue motifs woven in twill, elaborately shaded. The Rococo and shellwork framing, encloses flirtatious shepherds and shepherdesses. Roses are prominently displayed in this pastoral scene, so typical of the period.

was featured in garlands and bouquets placed in classic urns where it became associated with a vegetable, the artichoke. The pomegranate motif originated in Persia and was used profusely in textile designs which soon reached Italy and were quickly adopted by the Italian weavers. This strange new fruit from the East soon began to acquire the appearance of the artichoke in the designs of the Italians. The Italians elaborated upon it by weaving it into fantastic motifs, which often had roses sprouting from their tops. From then on, through the entire Renaissance, the rose began to appear in more naturalistic forms and became the dominant floral motif woven in the beautiful Genoese jardiniere velvets, brocades and damasks of the 16th and 17th Centuries, when weaving in Italy was at its zenith.

The rose had come to France as a favored motif when Pope Clement V moved his Papal Court to Avignon in the 14th Century, and was more extensively used when Louis XI started silk weaving in Lyons in the following century. Since all the weavers in both instances were brought from Italy, naturally Italian motifs appear in all the textiles of this period.

#### Great Era of Weaving

The 18th Century weavers of France reproduced nature in the most realistic manner ever attained and their work rivaled that of painting in the effects of light, shading and blending of colors. It was also an era unparalleled for famous designers and weavers whose names stand out in history above all others, either before or since their advent. Throughout the entire century the rose was dominant. Jean Revel excelled in a form of brocading known as "hatching," whereby the illusion of reality was obtained by dovetailing the colors in gradations of lights and shadows. Philippe de La Salle, a painter, botanist, designer and weaver, was unsurpassed in the naturalism of his flowers. Meissonier, the greatest exponent of the rococo decoration, framed his floral sprays in rococo scrolls. All three of these master craftsmen profusely used the rose in their decoration and textile designs.

#### **Favored in Romantic Period**

The Empire period featured the Napoleonic emblems inspired by the Roman Caesars and the rose gave precedence to the laurel leaf, which symbolized victory. We often find the two combined in wreaths and stripes, briliantly used in the textiles of this era. When the Restoration followed the Emperor's downfall, the restored Bourbons endeavored to eradicate all evidence of their predecessor by bringing back the styles of the Monarchy of the 18th Century. In the romantic epoch of Louis Philippe and the 2nd Empire the rose was introduced into practically every silk woven.

The rose, the emblem of England, attained an important place in English history in the 15th Century during the "War of the Roses," when the Houses of Lancaster and York, with their red and white rose emblems, fought An 18th Century brocatelle woven at Lyons, France during the Louis XV period. The sprays of roses are enclosed with Rococo scrolls, a formation known as "contrasted balance." The interstices of the scrolls have lace mesh patterns inspired from Mechlin bobbin laces.

over the possession of the throne. We read at a later date of Henry the VII ordering velvet and cloth of gold to be woven in France with rose motifs and so the Tudor Rose was initiated into fashion. It was called "rose-en-Soleil." It was the Edict of Nantes in 1685, during the reign of Louis XIV, that brought the Huguenot weavers to England and they



A lampas of crimson satin, with gold and ivory motifs in twill. It is strongly reminiscent of the work of the famous designer, Philippe de La Salle and was woven at Lyons, France, during the era of Louis XVI. The classical graceful floral festoons of roses, combined with cupids, place this textile circa 1780-1790.

borrowed the floral designs of France, particularly the rose, for their silk textiles.

For a time the rose competed with the Dutch floral favorite, the tulip, but won out in the following century. During the long reign of Victoria it luxuriated into the flamboyant cabbage rose. The period witnessed the beginning of the Machine Age and fabrics were turned out in quantities, so greatly lowered in price that they were within the means of all. Roses were prominently featured in this 19th Century era.

And so today, the rose that has always been the poetic floral symbol of wisdom, romance and beauty, still continues to hold sway in spite of the endeavors of scoffing modernists to replace it. Even they, are not always immune to its appeal in artistic design.

A lampas of French blue satin, with off-white and gold twill motifs. It was woven in the early XIX Century, during the period of the French Empire. Large scaled motifs form a pattern of geometric formation. The wreaths of roses enclose symmetrical sprays of the same ever popular flower.

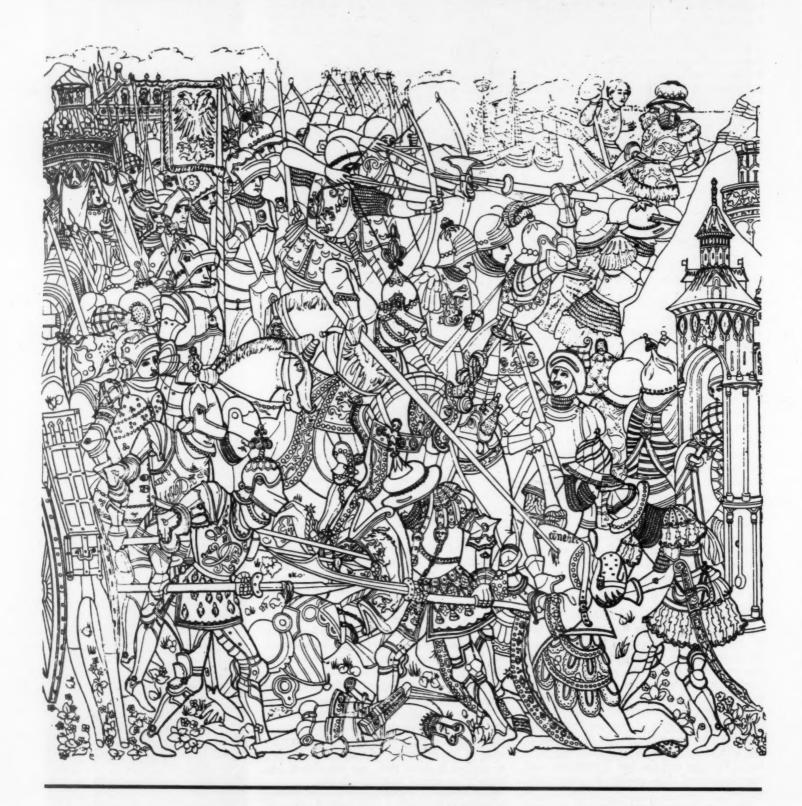


18th Century Brocatelle



Early 19th Century

- Telar vers ariovillus unit a force et lors fu vaincus ariovilus lans aftendre lors fuiant unit es nefs descendre ains lans grand force ou doulour ot julies chesar par amour le demanne entre les francois quils trouva leaus a son chois ->
  - darjoustus fu lepploit tel qui frança fu biughier voloit celar puis racacha lans coucte drapés brennis et la route bailles et portes de lens et o lui les françois de alleus

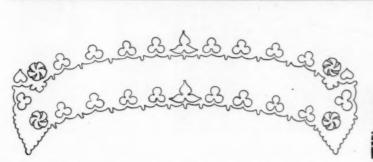


Armor of the Middle 15th Century — from the Caesar Tapestry of Bern.



IKE EVERY BRANCH OF ART,

THE MAKING OF ARMS AND ARMOR BROUGHT INTO PLAY THE FINEST DESIGNING AND TECHNICAL SKILLS OF ANCIENT AND MEDIEVAL MEN. A SELECTION OF THESE DESIGNS EXECUTED, MIND YOU, NOT ON PAPER, CANVAS OR FABRIC, BUT ON TEMPERED STEEL, ARE PRESENTED IN THESE PAGES...



Pierced trefoil ornament from Italian armor (about 1480).



Etched ornament from helmet, German (1540).



Ornamental design, old European armor.



Punched ornament from helmet, French (1700).



Engraved ornament from French gun.



Etched ornament on blade, Saxon (1575).



Inlaid ivory ornament from gun, German, 17th Century.



Sculptured ornament partisan of Louis XIV.



Damascening on chamfron, dated 1539.



Painted motif, Venetian, XVIII Century.



Etched ornament, German (1550).



Japanese armor ornament, superbly adapted to modern textile design.



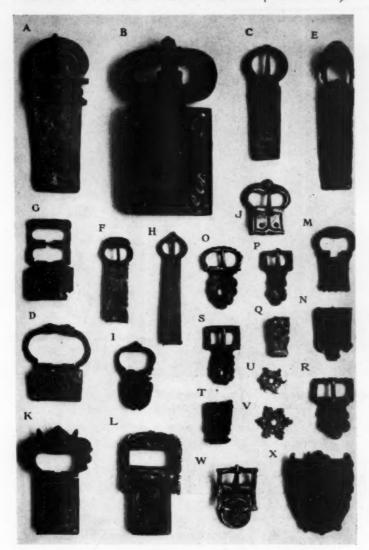
Illustrations Courtesy Metropolitan Museum of Art.

The chain armor of olden days holds the germ of an idea for present-day fashion designs.





# ARMS AND ARMOR (continued)



Belt buckles; part of the Metropolitan Museum of Art collection.



As intricate and delicate as lace filigree — yet made of steel.



Sculptured ornament on feather staff, Venetian (1550).



A fresh, loose feeling characterizes this detail from Genouilhac armor.



A remarkable example of design in Japanese armor, 10th or 11th Century, from Temple Sugata-No-Miya.

# American Fabrics Forum



Karl S. Bolander, director of Scholastics Magazine, illustrates good design with Amer-Mill fabrics to art students, Phoenix, Ariz., Union High School, January 19th, 1949, as part of educational plan which was recently inaugurated by the American Silk Mills.

# AT WHAT LEVEL SHALL WE SEEK TALENT?

In an earlier issue the editors of American Fabrics earnestly beseeched the American textile industry to devote more effort toward the encouragement of young men and women to bring their talents and their fresh viewpoint to this great industry. We stressed, if you recall, the essential element of holding forth the interest, the financial reward, the opportunity to use originality and initiative as reasons why young people of ability should seek employment within this great industry rather than direct their talents elsewhere.

At what age level, at what education level should this work of proselytizing be started? Truthfully, we had in mind the about-to-leave-college group as the most logical level . . . but in the light of what one alert textile firm has done at a much lower level, we are ready to admit that perhaps there is no age or education boundary which the industry should not cross to attract and interest young Americans in the advantages of working in the American textile field.

All of us are, without doubt, familiar with the fine work being done by such educational bodies as the Drexel Institute, the Fashion Institute of Technology, Washington University, and a number of outstanding museums. They have succeeded, in a marked degree, in moulding the talents of young people toward practical adaptation of their ideas and skills to practical and commercial form. But the American Silk Mills, through president Milton Rubin and promotion director Lois Ullman, has launched a talent-encouragement program at the high school level . . . with gratifying and what may prove to be far-reaching results,

In simple form, American Silk Mills commercially sponsors the Dress Fabric Design (classification 10) Annual Scholastic Art Awards Competition. In addition to cash awards, Amer-Mill will print the winning designs on crepe, promoting them as "Young American Student Prints" and through cooperation with the major retail stores of the country these designs will be seen and worn by millions of women.

The inspiration for this plan started with Miss Ullman's own experience. As a high school student she was interested in sculpture; but the fact that she won an award for her work so inspired her that she determined to devote herself to the application of fine art to commerce. Gratifying as it was to have her teachers, friends and family constantly praise her work . . . it was only when an impartial jury of professional people stamped her work as outstanding that she felt confident of her ability. Miss Ullman expects that the design awards will inspire confidence in the winners.

Already the groundwork being done by high schools across the country is producing results. A record number of entries is anticipated, and by April, when the winners will be selected at the Fine Arts Galleries of Carnegie Institute, Amer-Mill expects to uncover a platinum mine of latent design talent.

We report this program as merely one phase of ways in which the industry can tackle the problem of attracting young blood to its fold. We're sure that the brains which developed what is already America's second industry will not be slow to uncover many other fruitful ways — The Editors. Stephan Lion, artist's representative and art consultant has had a career in museums and galleries promoting contemporary art both here and abroad. Lion is now representing a group of prominent artists—a cross-section appears in the pages following. He also represents Knoedler Galleries and their artists in the field of applied art. It is young Lion's objective, through commercial channels rather than through local galleries and museums, to bring art to the greatest number of people possible.



## Because it has been a consistent American Fabrics editorial

policy to urge that the best available artistic talent be brought into

the field of fabrics, we are happy to present the results of the efforts

of a young man who, as they say, is doing something about it.

Apropos of the American Fabrics policy of encouraging top artists to turn their talents toward this industry, the story of Stephan Lion's trials and tribulations . . . and his ultimate success . . . makes interesting reading.

Viewing the manner in which other industrial fields had attracted top creative talent . . . notably ceramics, glassware, wallpapers and greeting cards . . . Lion anticipated no great difficulty in enlisting the aid of these artists for the drapery industry. To his shock and consternation, he was met on all sides by what amounted to a set of retardant negatives . . . "they'll spoil my reputation" . . . "my work will be compromised in quality" . . . "my particular technic can't be reproduced in fabric" . . . "I don't know anything about the technical business of weaving or printing designs."

It took patience, persistence, persuasion. It required educational work among the top artists, convincing them that the textile industry could reproduce their fine work in commendable fashion. For, strangely enough, these creators

were more concerned with this aspect than any other! And it took long months of inspirational stimulation . . . but the end result was certainly worth it. For today, Lion has eight of the world's finest modern artists putting their best efforts into creating tapestry designs for the beautification of American homes.

Where, in the past, any of these artists would have been pleased to find his work in a score of homes, today he is assured of his part in raising the taste level of millions. The difference between Lion's approach and existing technics lay in the fact that Lion worked with his group of artists to create new and especially designed ideas, rather than reproduce literally from paintings which had been conceived as paintings to be hung. This necessitated a comprehensive understanding by the artists of home decorating trends and tastes ... but it is to their credit, as shown in the accompanying reproductions, that they grasped this viewpoint so speedily and so well.

As soon as the first set of designs was ready, Lion approached several top mills, and found quick acceptance. Furthermore, mill executives worked closely and intelligently with the artists in technical matters such as negotiating repeats, and maintaining the original art nuances. The result of this program has been what was hoped for: a steady flow of reorders on the fabrics from decorators and individuals, proving the validity of the American Fabrics contention that the public is receptive to higher art in textiles. So fine has been the reaction that the original group of eight artists has been expanded to twenty, all of them bearing names famed in the world of art.

There is no longer any question in the artist's mind that his work in the drapery field is as contributive to culture as his work on canvas. There is no longer any question in the mill's mind that it pays to raise the art level of textile products. This is a practical lesson from which other branches of the American textile industry can well profit.





MARCEL VERTES, EUGENE BERMAN AND CECIL BEATON















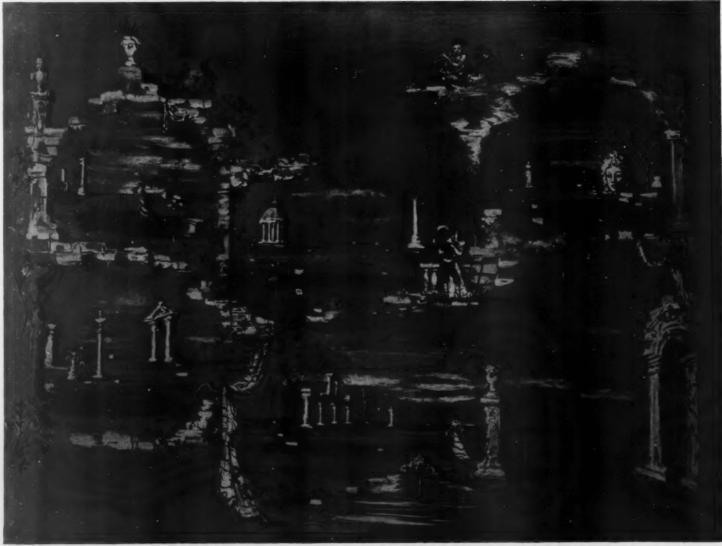
Top, bottom, and above are Greek Horses and Architectural Fantasies designed by Jean Pages.

DANIEL RASMUSSON'S "FLYING KITES" alongside, establishes this modern American as an impressionist designer of high order. Rasmusson's world is romantic but never sentimental. His figures wear the timeless and unchanging costumes of the ballet and the circus — his vision transcends the contemporary scene into pictures without date.

(continued)







RICARDO MAGNI



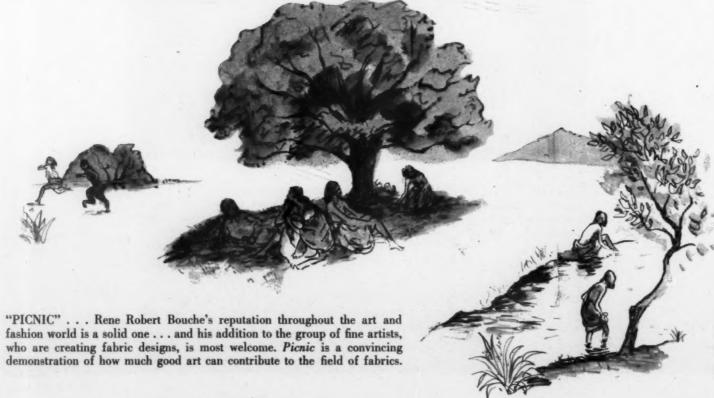
JEAN DE BOTTON'S "HALLELUJAH," like almost everything in his world, is gay and good. He has brought to America a precious thing, lightness of touch and fantasy, well adapted to the field of decorative fabrics. Whatever he paints — King George's Coronation, a stag hunt, cowboys, Taxco or San Francisco, his renderings have life.

Italian-born RICARDO MAGNI'S "ROMANCE" (opposite) carries on the tradition of the great 18th century baroque and rococo painters. His work in the field of decorative fabrics has a rich and magnificent flavor.

(continued)



PICNIC is printed on 50" Cotton Chintz and 50" Cotton Sateen



## American Fabrics Forum



### The Battle Which Will Be Won With Brains

The fisherman who calmly trolls in the waters of the Bahamas may never see a ripple on the surface, while underneath two mammoths of the ocean slash at each other in a fight to the death. Just so, in a silent but serious manner, the cotton and rayon industries are girding for the fight over which shall be king of the women's dress industry.

At the threshold of the recent war rayon had won its place on the throne of fashion, but it also dominated the low-priced volume field as well. When rayon went to war, the cotton industry was astute enough to recognize and grasp the opportunity . . . and did so well that cotton became fashion's darling instead of the hallmark of the working woman.

With the war-born demand for industrial uses tapered off, the producers of rayon have been casting about in search of replacement markets. It has found, in the past six months, that the daytime dress field is reluctant to throw out what it built so well for six years. Even deep price cuts have not served to shake loose the grip cotton has taken on the dress industry.

Frankly, it is our opinion that the battle will be decided not on the basis of brawn, but rather of brain. Rayon replaced silk through its versatility; cotton replaced rayon by elevating its fashion standard. While it is true that the consumer is in an appraising mood today, we believe that her vote will be cast for the fabric which does the better job of meeting her emotional requirements. It is not to be understood that we infer, by these statements, that either cotton or rayon will entirely replace the other; but the yardage potential is so huge that whichever gains the upper hand will find the struggle well worth while.

This is a challenge to the brains in both industries; a chance for each to show what it has in merchandising ability, in design talent, in technological genius. It may well eventuate that, striving for leadership, both cotton and rayon will find that they have so stimulated public taste that the two industries will thrive side by side.

We hope so. Certainly we are hopeful that the struggle will not culminate in a profitless price-cutting contest, which would be catastrophic not only for the mills but for the manufacturers and retailers in this country.



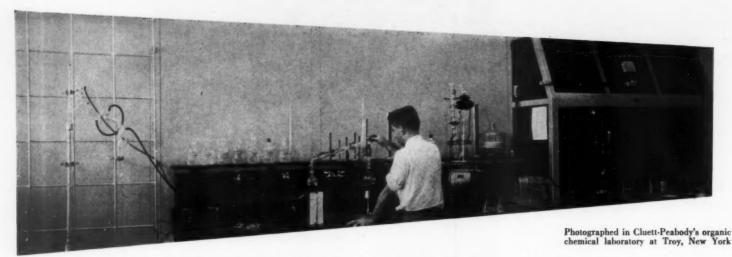
### In The Words Of Emerson . . .

We esteem the company, or the industry, which creates a new idea; but we esteem even more highly one who recognizes its worth and puts it to use.

From its inception American Fabrics has steadily urged members of the textile industry to lift their eyes above the narrow horizon of traditional design, and seek inspiration in other fields. We have, from time to time, reproduced actual examples of the successful application of this suggestion. To implement its validity still further, we reproduce an announcement made by Mooresville Mills recently.

Here is a case wherein an alert design department saw the selling potential of an idea which, in the men's wear industry, has steadily met with strong consumer acceptance. We have no doubt that Regimental Stripes will sell easily for Mooresville's retailers; millions of men are already preconditioned in favor of these multi-color stripes in their personal apparel, and will probably be as glad to see them in bath towels.

Women, of course, should welcome these towels as a fresh note, a departure from the timeworn staple stripes. Of course much depends on the tempo of Mooresville's promotion of the Regimental Stripes; but we cannot too fully praise that company's fine alertness in recognizing an idea even from a far-removed industry.



Because the editors of American Fabrics believe that the textile research achievements of today are the fabrics and fashions of tomorrow, we present this digest of a paper presented at a meeting of the Association of Textile Technologists by Julius B. Goldberg, Research Director of J. P. Stevens & Co., Inc., in which Mr. Goldberg sums up the most recent research achievements of the textile and allied industries.

THOSE of us who are closely allied with the textile industry are often unaware of the developments which are being introduced from day to day, and we are likely to overlook the progressive innovations unless they are as dramatic as the "new look" in automobiles or as highly publicized as the name of a mystery melody on a radio show. In reviewing the accomplishments of the past year, we can report nothing as intriguing to the housewife as the miracle wax emulsion for cleaning glass or as breath-taking as the new "Breatholator," the modern substitute for cloves, chewing gum or mouth-wash. But there have been new products, equipment and processing methods which testify to the continued achievements of textile research in bringing to the consumer better fabrics or in providing more efficient manufacturing operations.

I bring to your attention facts which were recorded in over 50 domestic and foreign publications concerned with all branches of the textile industry, divided into the following classifications: (1) fibers and yarns, (2) manufacturing methods and equipment, (3) dyeing and finishing products and operations, (4) laboratory instruments and techniques and (5) research organization activities.

### FIBERS AND YARNS

### Man-Made Fibers

Another year has passed with no radically new synthetic fibers or yarns produced for commercial use (see note on "Orlon" below). For the women in our lives it appears that it will be some time before the test-tube wizards will turn out a more acceptable and glamorous yarn for hosiery than the now commonplace nylon. Holding an enviable position on almost every female leg, this outstanding product of research is now creeping up and making closer contact with milady in the form of lingerie fabrics and even getting into her hair in the form of nets. Nevertheless, while we are unable to record anything as exciting and successful as nylon, there have been many improvements made in existing yarns either through modifications in the basic components or through changes in methods of manufacture.

The Virginia-Carolina Chemical Company started production of their "Vicara" fiber in the plant formerly occupied by the Aralac Company, but changed diets from the original peanut protein to zein corn protein as a basic raw material. Sample fabrics made with fairly high content of this newest "wool-like" fiber show promise of arousing increasing interest, although the relatively high cost is a restraining factor which cannot be overlooked. It will be recalled that experimental spinning of fiber from zein had been

carried out in recent years at the Department of Agriculture Northern Regional Research Laboratory in Peoria, Illinois. The Carbide and Carbon Chemicals Corporation disclosed technical data on the seven types of Vinyon "N" available in limited amounts. Laboratory scale production of a mono-filament polyethylene fiber was announced by the American Viscose Corporation, similar to the products made by the DuPont Company using the Imperial Chemical Industries, Ltd. process and also by Carbide and Carbon Chemical Corporation in 1944. Late in the year, the American Bemberg Corporation introduced an improved cuprammonium yarn and the claims of better uniformity and improved dyeing characteristics are now being investigated through practical mill trials. The DuPont Company's "Fiber A" showed signs of emerging from the infant toddling stage when it was formally christened "Orlon" and plans were revealed for the construction of a new plant to raise it from the Pilot Plant class to commercial volume within the next two years. Reports also emanated from the same company of further progress in the development of "Fiber V," more commonly known by its Imperial Chemical Industries' name of "Terylene," but no significant poundage can be expected for some time. As publicized over a year ago, this material is of particular interest because of its high modulus of elasticity, and its resistance to heat, light, acids, alkalies and bleaching agents.

Hope springs eternal — and the research worker is constantly intrigued with the possibility of breathing life — as well as some of the springs — into fibers of his own creation. From Italy, France and Japan have come reports of improved viscose process rayons with unusual resilience, and others with reduced swelling and shrinkage properties. By way of novelty it was said that experiments have been conducted in England on the treatment of sisal waste to yield a pectate suitable for making a new synthetic fiber.

A true product of research was "Monocord," a non-twisted sewing thread, developed by Belding Hemingway Corticelli Company. This is made by a unique welding operation which binds together a number of parallel filaments and yet retains air space between them and most of the flexibility of the original multi-filament yarn. Original pilot plant production has been on an all nylon yarn and is being introduced to the trade as "Nymo."

### New Patents

Patents were issued in this country and abroad on the preparation of continuous filament yarns by a process comprising the dissolving in aqueous alkali of a reduced wool, then precipitating, redissolving and spinning; the production of viscose filaments with horseshoe cross-section, presumably for imparting curl rather than good luck; cellulose acetate fibers with wool-dyeing properties; etc., etc.

### **Natural Fibers**

Not to be outdone by the laboratory scale production of yarns and fabrics from chicken feathers in this country over a year ago, a South African was said to have invented a secret method of manufacturing a soft, durable cloth from ostrich feathers.

The perennial ramie plant again proved to be the source of one of our hardiest fibers, surviving the onslaught of caustic critics and acid antagonists and emerging undaunted in frequent news dispatches and press releases. Its devoted supporters continue to provide nourishment in the form of new funds to exploit its growth, decortication and processing, but as yet it has not reached the popularity or success of its brother vegetable fibers or the manmade pretenders to the throne of "King Cotton." One company plans to build a spinning and weaving mill in California this year to produce sheeting and shirting fibers.

"Fesslin" was announced as an improved, purified form of flax fiber which can be handled on conventional cotton manufacturing equipment by itself or in blends with other fibers. The silk worm is still turning in its struggle for survival, and it was reported that the use of thousands of new Italian-made machines would make Brazil the world's largest producer of silk in about two years, with prices low enough to compete with rayon.

### Slashing, Weaving and Knitting

In the field of slashing, improved warp sizing was claimed by the inventors of a patented process for the application of a sizing lubricator at the slasher. Hot air has definitely come into its own and should no longer be regarded as an after-dinner speaker's only way of repaying his sponsors for a free meal. The Uxbridge Worsted Company's new high speed drying unit for slashers showed promise of having many advantages over the usual heated cylinder type of equipment. Several weavers put the new Kellogg loom to practical operating tests in a number of mills but the original models were withdrawn late in the year for design changes and improvements.

What might be facetiously described as another "blow" to the manufacturers of conventional textile machines is an apparatus for spinning textile fibers through the use of a cyclone chamber and high pressure air iets to subject the fibers to a swirling motion which eventually produces a spun varn. This unusual equipment was patented by a Los Angeles textile engineer, but no exhibit of the end-product or disclosure of manufacturing details have yet been made by the inventor.

### FINISHED GOODS

### Dyestuffs and Finishes

What was said to be a completely new cotton dyestuff possessing good fastness to washing and light was the new Alcian Blue introduced about a year ago by Imperial Chemical Industries. Ltd. According to announcements made in the literature, about 90 new dyestuffs and pigments were offered by domestic manufacturers during the year, along with over 150 new chemical auxiliaries.

Increasing interest was shown in wrinkle-resistant cottons and another contender for the fair hand of the Maid of Cotton was the American Cvanamid Company's "Superset" melamine resin finish for imparting stability to washing and resistance to creasing.

"Coronizing" was the name assigned by the Owens-Corning Fiberglas Corporation to their new process for imparting a permanent soft hand and draping characteristics to Fiberglas fabrics.

Offset printing of textile fabrics at low cost and in colors resistant to sunlight fading and severe laundering was made possible with the formulation of special inks by a North Carolina Company, while a new group of stabilized azoic dyes requiring acid aging promised improved colorfastness in bright cotton prints.

Like the antidote following the poison, now that progress has been made in the application of dyestuffs to nylon, the Mathieson Chemical Corporation has found a way to correct our mistakes with "Textone," a new material to be used for the partial or complete removal of dyestuff from nylon.

In the processing of woolen fabrics, the use of chemical methods for obtaining shrink-resistance has not been as widespread as was predicted a year ago, but research efforts to obtain fool-proof results continue.

Moths are again being threatened with starvation by the campaign of at least two fabric manufacturers in promoting the use of moth-proofing treatments on men's wear materials.

If making the headlines of one of our great picture weeklies is any criterion, textile research developments seem to be holding their own in competing with the new brain-children of other industries. Some time ago a few pages of this publication were devoted to presenting the story of a simple chemical solution to be sprayed on hats, coats and other wearing apparel to make them water-repellent. The same magazine devoted valuable space to publicity on a new plastic durable starch for home use on cotton wearing apparel. This so-called "strong starch," good for as many as eight repeated launderings without renewal, and reputed to increase the life of the cotton fabric, is basically the same material sold several years ago under the name of "Kandar" for commercial use as a permanent finishing material.

### Methods and Equipment

Through the application of a double printing process, a New England print works stated that they had created fine tropical worsted and tweed effects on popular priced cottons. Among British patents issued during the year was one to a New Jersey bleachery involving the application of electric current during a continuous vat dveing process to complete reduction of the dyestuff to its soluble form, effecting quick, uniform penetration of the fibers. Another British patent covered the finishing of fabrics composed of equal parts of cellulose acetate staple fiber and wool, whereby steeping in 40% acetic acid produced an increased proportion of wool on the surface of such fabric.

Also from England was issued the report of a new printing process whereby a large number of colors can be put on one roll, but no further details have been forthcoming.

The "Duplex" continuous dyeing machine was acclaimed for its ability to produce uniform shades on pieces of varying length and for its all-around versatility in giving maximum production with a minimum of effort and cost.

### **New Consumer Products**

A few of the interesting new consumer items which were announced last year include all nylon carpeting, a light-reflecting glass beaded fabric to be used as trim on children's garments protecting the wearer on dark streets, and a rubber-backed carpeting.

Mindful of the trend toward the development of products to pamper this thin-skinned generation, we were also offered bedsheets made of a blend of rayon and cotton, wool and cotton knitted underwear with the itch removed by keeping all of the cotton on the surface and rayon terry bath towels.

The serviceability of textile materials in certain types of wearing apparel is still of prime importance, and technicians continued to try to improve existing test methods or devise new ones which would predict fabric success or failure. For the ultimate protection of those of us who do not know enough to come in out of the rain, research workers have evolved an orifice test to measure yarn for swelling properties when wet and a new hydrodynamic test for water resistance which can be correlated with rainfall intensity.

The resistance of yarns and fabrics to abrasion and the relationship between laboratory tests and what happens to junior's (Continued)

### Textile Research Achievements (continued)

pants when he's learning to roller skate or climbs a fence at a ball park is still the subject of much investigation and controversy. One of the newest laboratory instruments which may predict clothing serviceability is the Stoll-Quartermaster Universal Wear Tester designed at the Q. M. Textile Materials Engineering Laboratory to produce flat, edge and flex abrasion on any specimen.

For measuring exact color differences, a photoelectric "Color Eye" was designed at laboratories of Pittsburgh Plate Glass.

### Research Organization Activities

In addition to making further investigations of chemical and physical damage and the mechanical properties of fibers, the Textile Research Institute at Princeton, New Jersey initiated two long-term sponsored research projects, one on the fundamentals of the dyeing process and the other on the basic characteristics of wool. The Institute of Textile Technology at Charlottesville, Virginia continued to receive wide industry support and made substantial increases in laboratory facilities and technical personnel.

A new million dollar research center of the Cluett, Peabody & Co., Inc. at Troy, New York with provisions for fundamental chemical and physical studies of fibers, fabrics and finishes, and complete pilot plants for spinning, weaving, dyeing and finishing was formally opened last Fall. Evidence of growing interest in textile testing and research laboratories operated by manufacturers, dyers and finishers and converters was shown by the number of articles on this subject which appeared during the past year.

### Study of Cotton and Wool Fibers

Organizations such as the Mellon Institute, the Armour Research Foundation, the Southern Research Institute and others reported research activity on problems pertaining to warp sizing, bonded fabrics, fabric shrinkage control and fiber processing. The Research and Marketing Act of 1946 provided about one million dollars for cotton fiber research for the fiscal year 1948.

In England, the British Wool Industry Surplus Cloth Corporation allotted \$160,000 toward founding a chair of Wool Textile Machinery Research at Leeds University, the International Wool Secretariat granted an additional \$40,000 to the same school for new wool research laboratories, and the new British Rayon Research Association was getting under way. The famous Shirley Institute announced plans for new laboratory buildings and the Wool Industries Research Association presented a five-year development plan to cost almost one million dollars.

### **Future Developments**

In this atomic age, looking into the future is about as reliable as last year's political campaign promises, but there is no harm in commenting on some interesting developments which may not be more than a few years away.

Greater demands for new synthetic fibers for industrial fabrics seem inevitable since the existing natural and man-made fibers and yarns fail to meet the rigid requirements of resistance to high temperatures and all kinds of chemicals in liquid and vapor states. Research workers are now exploring the possibilities of spinning fibers and yarns from some of the newer resins, but the very desirable properties of insolubility, chemical inertness and high melting points make the problems of finding new solvents, plasticizers and spinning methods extremely complex.

As stated by Dr. G. P. Hoff of the DuPont Company a few months ago, "The knowledge of linear polymers has now reached a stage of development which makes it easy to synthesize a new fiber-forming polymer. The difficulty arises in finding one with the right combination of properties to fill needs not satisfied by existing fibers."

### Search for Additional Yarn Properties

It is probably only a matter of time before the speedy continuous spinning methods of making viscose process rayons of greater uniformity will constitute an important part of the world's production, although costly change-overs are definitely a hindrance to more rapid development. The patent literature reveals some of the thinking on the part of progressive manufacturers who plan to stay in the running with their competitors. In the processing of rayon yarns the trend is definitely toward the use of larger packages and higher speeds, but such changes will be made only when it has been proven that yarn and fabric quality can be improved at the same time. In twisting it is very likely that the use of some type of the "two-for-one" twister will be given serious consideration.

In Conclusion, . . . the famous engineer who accused the textile industry of being the caboose on the train of technological progress may find that there is a high-powered engine in that caboose—and push is often as effective as pull.— J. B. Goldberg

1 1



Window Display of Spring Fabrics from the Fabric Salon of Saks-5th Avenue,



Seaweed Gatherers at Omori, by Utagawa Kuniyoshi 1797-1861. Courtesy Henry L. Phillips Collection.



Brocaded satin pattern of fish, flowering lotus and water weeds, small wan characters written like a swastika, but having nothing to do with a swastika and two of the Eight Trigrams, each repeated once. Red satin brocaded in gray-green. Courtesy Metropolitan Museum of Art.



# THE CONSUMER

The millman, the converter, the apparel manufacturer, the retailer, the retail clerk...all throw at Mrs. Consumer words and phrases as selling blandishment... all assuming that she knows what they're talking about. Sadly enough, it's gibberish to her. And so writer Cora Carlyle gathers a group of typical

- Q. What specific name or names are there for a rayon crepe that may be classed as the equivalent of a silk crepe?
- A. Silk crepes were known in the trade as flat crepes; fabrics made of all-viscose or all-acetate warp and viscose crepe filling are known as rayon flat crepes.
- Q. Is there any difference between a flat crepe and a radium?
- A. Yes. A flat crepe uses full crepe-twist filling yarn 2-S and 2-Z twist. Radium, strictly speaking, is a silk cloth made of greige warp and tram filling. Rayon radiums use a regular twist-filling yarn of 3 or 3½ turns of twist per inch.
- Q. Is rayon Crepe de Chine made today?
- A. Yes, and this fabric is nothing more than a very light, sheer, flat crepe.
- Q. What are the differences, if any, between Canton crepe and crepe Marocain?
- A. Canton crepes are made with a continuous filament crepe yarn with 150, 200 or even 300-denier yarn. Crepe Marocain is usually made with a spun rayon, wool or cotton crepe-twist yarn. It is also possible to make the fabric with heavier denier viscose crepe yarns but this practice is not common.
- Q. Is it true that women have an "unconscious color sense," that is, an inborn feeling that prompts them in color selection?
- A. I will try to add a little color to this question by saying that perhaps "subconscious" or "unwitting" might be better terms. Be that as it may, it would be strange, indeed, if women had not developed such an ability after centuries of color selection. Now, to bolster this statement, I'll tell you a little story. An Indian potentate served tea from a tea set in which each cup and saucer were of a different color. The jolly Rajah was much amused when he observed that, as each tray was passed, each lady guest would invariably choose a cup and saucer that matched or complemented her costume. And they did their choosing in a subconscious or unwitting manner.
- Q. Stockings are always too long for me. I have to gather the top in a bunch in the garter and it annoys me no end since it either slips out or results in a lovely run. What may I do?
- A. Ask at your favorite hosiery counter for your proper length. Today hosiery is made to take care of all leg lengths, and you should have no trouble at all in securing the correct one

for your use. The garter should fasten into the top without any doubling over and you should enjoy complete comfort. Get into the habit of buying your stockings from the one salesperson who will come to know your particular needs.

- Q. Why do the finger tips of my gloves wear through before the rest of the glove shows any sign of becoming worn out?
- A. I assume that there are two gloves in the pair and here is a pair of answers: You may have very long fingers or you may have long finger nails. In either case, if you try on the gloves before buying, you should be able to make sure that the gloves are well fitted to your digits, thumb included.
- Q. What is the origin of the fabric term, Corduroy?
- A. It comes from an old French term, "Corde du Roi," which means Cord of the King. Also, readers of old English literature will recall that garments of fustian were mentioned as a popular fabric in apparel in the days of the Louis Kings of France. Corduroy is an off-shoot of fustian and at one time what is today known as corduroy was called fustian. Fustian received its name from a suburb in Cairo, El Fustade, where the cloth was made by Arabs who settled in Egypt.
- Q. I enjoy wearing suits, but it so happens that I am constructed in such a way that no matter how good the material is in the suit, the back of the skirt always "sits out." Can you help me?
- A. This may be a mere matter of form; have a panel of taffeta sewed in between the two back seams. This panel need not extend to the waist or to the hem. May I hear from you as to results?
- Q. What is the dividing line, numerically, for filament varn?
- A. Usually yarns with 60 or more filaments are considered multifilament. It should be kept in mind, however, that the present changes and improvements being made in all man-made and synthetic yarns may cause changes in due course of time. If the term denier accompanies the number of filaments, it is safe to say that 40-denier, 40-filament and 50-denier, 50-filament would be classed as multifilament yarn.
- Q. What is meant by "hidden value" in comparing one fabric or garment with others?
- A. The "hidden value" in a garment becomes apparent only upon use, and is not evident during purchase. In a fabric the value may be in its inherent power for color resistance to light,

# WANTS TO KNOW...

Mrs. Consumers from time to time . . . asks them what they'd like clarified in textile terms . . . and then fires the questions at Dr. George Linton. Here is the sixth batch. The moral is: Just because you know what you mean, don't take it for granted that the other person does.



laundering, atmospheric gases or soil; shrink resistance, water repellence, stability of weave and construction, etc.

repellence, stability of weave and construction, etc.

As for the garment some "hidden values" include strong stitching thread, piping that will not bleed, proper interlining, etc. And, may I again emphasize the value of reading the tags and labels on every garment you purchase — they tell much that is of value.

### Q. What is a bugle-bead trimming?

- A. "Bugle beads" are shaped like the stem of a bugle, that is, in long, cylindrical form, \( \frac{1}{4}'' \) to \( \frac{1}{2}'' \) long. These beads are sold already strung. To apply them to a design on a dress, you have only to catch the thread between each bead. This saves much time since they are so long.
- Q. Recently I read that the Romans always wore gloves during their feasts. Were they more fastidious than we are or what was the reason?
- A. During the height of the halcyon days of the Roman Empire gloves were worn for protection at feasts. Enormous dishes of very hot, steaming food were brought to the festive board. Everyone reached for his or her share. So gloves were worn, not to keep the hands clean but to protect from burns.
- Q. I am a gal who loves black lingerie and has lots of it—slips, gowns, girdles, etc. But when I wash these black mentionables and unmentionables even the water is black. Is there any way this can be stopped?
- A. No, but fear not! What comes out in the water is only loose surface dye. Light-colored dye comes out, as well, but you hardly notice it. And the black lingerie will look just as black after washing because the basic dyed-in color remains. Don't try any harsh treatments such as using very hot water or soaking or adding chemicals; any or all of these might be injurious to the garments and to the elastic yarns used in them.

This is such an intriguing question I will even venture further with the following routine to follow:

- 1. Wash black garments alone so that no black transfers to light-colored ones.
- If you roll the garments in a towel to remove the excess moisture, be sure to use an old towel since there is the possibility that some black may become fugitive or run off onto the towel.
- Hang over tub or a tile floor while drying because there will likely be "drips."
- 4. If very damp when ironed, some black may come off on the board cover so protect it.
- Q. I have read about the new nylon brushed-surface

- sweaters and before buying one would like to pose this question . . . are they scratchy to the skin?
- A. Brushed wool nylon sweaters are not at all scratchy. Their touch on the skin is very soft, pleasant and in fact, "downright cozy." Further, they will not shrink or mat when washed, and the brushed surface is not flammable.
- Q. I know how important it is to a young girl to learn about good grooming. I do not seem able, however, to teach my daughter how to take care of her clothes. Can you offer any help? I choose very good quality and style for her but she does not seem to be interested.
- A. How about letting her choose her own clothes? Girls usually love to select their own things. You might even send her shopping alone to salespeople you know and who are acquainted with her requirements. Then she will feel that the things are hers. Let the sales person give her some tips on the care of garments. I think it will work and from here you carry the ball. Let me know the results.
- Q. What is meant by a "basic dress?" This term, often seen in advertisements on fashions, interests me.
- A. This type of dress may be described as one of solid color, neutral very often, and not necessarily black. The dress is not of a striking hue and it is cut along simple, uncluttered lines. It fits well but not too tightly or too loosely in any portion of the garment. It is a dress that you feel at ease when wearing and it lends itself to the accent of costume jewelry, lingeric touches, striking belts, artificial flowers and ceramic doodaddles.

The basic dress is styled for many types of individuals and, most of all, it is a good buy since it is more than a "one-season dress."

### Q. How is ready-made quilting done so evenly?

- A. A remarkable machine performs this operation and stitches many parallel rows simultaneously. They are all guided mechanically so that they will not waver.
- Q. Can you tell me something about a new textile fiber called "Orlon"?
- A. "Orlon" is a new "man-made synthetic fiber" manufactured by the E. I. duPont de Nemours & Co., Inc. It is the most silk-like of the man-made and synthetic filaments or fibers on the market today. In staple form it is the most wool-like type of fiber. It will resist outdoor exposure (sun, smoke, fumes, gases) better than any other man-made, natural or synthetic fiber. At present Orlon is being woven for industrial purposes but may be used for consumer goods within a year.



photographed in the hand-weaving studio of Kjeld Juul-Hansen, New York

### Key Steps preliminary to the actual weaving

Editor's Note: This series of steps is substantially the same as those employed in large-scale mechanical weaving.

- (1) the yarn which comes in skeins is first put on the yarn binder; it is then crossed on the warping board or reel;
- (2) when it is taken off the board it is braided to keep it from becoming disarranged;
- (3) it is then separated on the comb to get the warp even on the loom before warping;
- (4) the warp is then set up on the loom . . .
- (5) ... and knotted. The new warp is tied to the old warp on the heddles.
- (6) the warp is hooked to the reed . . . .
- (7) ... and tied to the apron ready for weaving (8) ... actual weaving begins.



### Results of American Fabrics Survey Among Hand-Loom Weavers

Conducted by Annafreddie Carstens

QUESTION: What are your favorite and most used patterns (threading drafts)?

ANSWER: (in order of preference)

1-Twill, Colonial Overshot

2-Leon Lace Weaves-Gauze; Modified Twills; Swedish or Bronson Lace

3—Texture

4-M's and O's; Summer and Winter Weave

5—Diamond Weaves 6—Bird's Eye Weaves; Basket Weaves

1 1 1

QUESTION: Is weaving a hobby? Is weaving a business? Or is it both?

ANSWER: Hobby 40% Business

40% Hobby and Business 50%

1 1 1 QUESTION: Which type of loom do you use?

ANSWER: Counter Balanced 79% Jack Loom Other type of loom 23%

1 1 1 QUESTION: Which yarns most often used?

ANSWER: 1-Cotton; Linen; Wool

2-Metal Threads

3-Man-made; Rayon, nylon, etc.

4-Ramie 5-Silk

4 .

QUESTION: Give cloth classifications woven.

ANSWER: 1—Cloth Weaves 2—Twill; Brocade or Overshot

3—Summer and Winter

4—Inlay

5-M's and O's

1 1 1 QUESTION: Where did you learn to weave?

ANSWER: 1-Class at School, or Private Instruction

2-Or by both means

3—By reading books

QUESTION: How many years have you

ANSWER: Tabulated results indicated that there are twice as many people weaving today compared with the number of people weaving ten years ago.

QUESTION: Give widths of looms most frequently used.

ANSWER: (in order of preference and use)

1-Forty-five inch and twenty inch

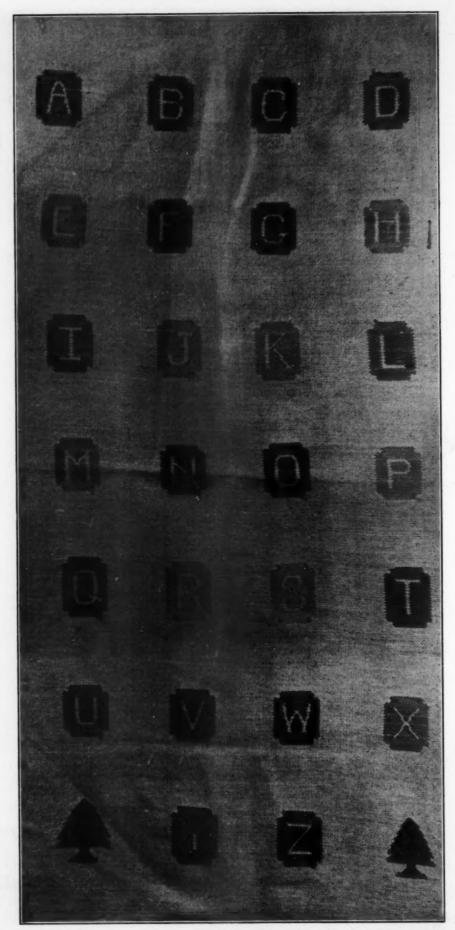
Twelve inch and fifty-four inch 3-Thirty-six inch and sixty inch

4—Thirty inch and eight inch 5—Forty-two inch and fourteen inch

6-Seventy-two inch and ten inch

7-Ninety inch

Editor's note: Above data compiled from approximately one thousand answers received in response to questionnaire sent to representa-tive weavers in various parts of the country.



Alphabet sampler, inlay materials, linen, warp and weft, woven by Mrs. James Levy of Cincinnati, Ohio.





Photographed at Peggy Ives Studio, Ogunquit, Maine

# DICTIONARY

OF

# Terms the Hand-Loom Weaver Should Know

COMPILED BY

DR. GEORGE LINTON, Textile Editor for American Fabrics

ALASKA YARN: Mixture yarn of about two-warps and one filling. The former is known as a BATTENIN

ALASKA YARN: Mixture yarn of about twothirds cotton and one-third combined wool stocks; popular in knitting and hand weaving circles.

ANDALUSIAN WOOL: 1. Medium fine Spanish wool. 2. A very fine, tour-ply worsted yarn much used for knitting purposes in the British Isles.

APRON: Any material, usually canvas, attached to the warp beam or the cloth beam to which the warp ends are tied. Used as a leader for woven fabric around the cloth roller.

BACK BEAM: The back beam of the loom which corresponds to the breast beam at the front of the loom where the weaver works. Also known as Slabstock, Whip roll.

BACK FILLING: An extra filling woven into a cloth to add weight strength, warmth, or to define a pattern such as pique, Marseilles quilting, Frenchback, overcoating, etc.

BACKED CLOTH: Single texture material with addition of an extra warp or filling that is added for weight and warmth. The extra warp or filling may be of wool, worsted or cotton. This type of construction is found in Frenchbacks, vestings, worsteds, dressgoods, suitings and skirtings. Satin weave constructions, as well as twill weaves, may be used in the designing of the cloth.

BACKED FABRICS: Cloths made with three sets of threads — one warp and two fillings, or two

warps and one filling. The former is known as a filling backed fabric; the latter, a warp backed fabric. The extra warp or filling adds weight to the cloth, gives greater warmth and helps to cover up the spaces between the interlacings of the warp and filling threads. Cloths of this type have a wide range of designs and variety. Backed cloths are used for coating, suitings, vestings, trouserings, novelties, fancies, blankets, decorative cloths and Frenchbacks. Much of the material is relatively low in price.

BARRY, BARRE MARKS: Barré is the French term. Fabrics which have bars or stripes that would be detrimental to the finished cloth are given this name. The defects are usually seen in the filling direction and may be caused by uneven weaving, mixed filling yarn, poor or irregular yarn, etc. Warpwise defects of this nature are usually due to reeding faults and errors.

BASKET: A fabric weave of any material which, instead of having single threads interlace at right angles, is made by having two threads or more weave alike in both warp and filling direction, conjoined in the regular order of the plain weave. Effect noted is similar to straight plaited cane basket work. Hopsack suiting and monk's cloth are examples.

BATTEN, BEATER: The frame which holds the reed in place and used to beat-in the west or filling picks.

BATTENING: The process of beating filling or weft threads into place in woven goods.

BEAMING: The process of winding the warp yarn onto the warp beam.

BEAT-UP: Signifies the number of tufts per inch of length in a warp row of pile in carpet weaving. The term is used in connection with Axminster, Chenille and other materials not woven over wires and is synonymous with the term, wire, used in weaving Brussels and Wiltons.

BEATING-UP: The third and last motion in the action of a loom. It is the beating of the loose pick in the shed of the loom into its proper place or component part in the cloth. Beating-up is done by the action of the reed, which is a comb-like device through which the warp ends are drawn. The reed has a to-and-fro motion in its action.

BERLIN YARN: Also called German wool yarn, this high-quality knitting yarn is either wool or worsted; finds much use in high-grade winterwear knit goods.

BINDER, BINDING WARP: Ends or threads used in cloth construction to bind or hold two or more textures in place. These special threads weave over and under the face and the back threads in the weave according to some plan or motif that will work well with the basic weaves in the construction. Binder ends are used in Bedford

cord, beaver, chinchilla, face-finished cloths, kersey, melton, pique, plaid-back overcoating, etc.

BINDER PICKS: Those used in cloth construction which hold rather long floats or pile effects in place. These picks have to stitch properly with the face and back filling arrangements in the cloth.

BOBBIN: The device upon which the filling yarn is wound. It sets around the spindle shank of the bobbin, and is then set into place in the shuttle. The latter passes through the shed of the loom in order to place the loose filling pick between the raised and the lowered warp ends. A full bobbin has yarn wound on it in a snug manner, so that the filling will come off the nose of the bobbin in an easy, uniform manner.

BOBBIN WINDER: The machine used to actually wind west yarn onto the bobbin.

BORDER: A band or trimming along the edges of a fabric. In hand weaving it may be either part of the selvage, which runs in the warp direction, or a part of the weft or filling.

BOUT: A group of warp threads tied to one tape or section of the warp beam. Usually consists of the number of warp ends necessary to thread two inches of pattern.

BRAKE ARM: The long rod which reaches from the brake band to the front of the loom. It regulates the tautness of the brake band.

BRAKE BAND: The band of metal around the warp beam which governs the tension of the warp. Also known as Brake Drum.

BREAST BEAM: That part of the loom where the cloth comes over the beam after being woven and leaving the temples. It is located where the weaver stands, at the front part of the loom. This beam runs parallel to the whip roll located at the back of the loom, and is in the same plane with it; it is perpendicular to the warp and selvage edges of the warp, which complete the flat plane which makes weaving possible.

which makes weaving possible.

The woven material, after leaving the breast beam, passes downward and under it where it comes in contact with the sand roller; from there the cloth is wound on to the cloth roller, which will hold many yards of the newly made goods. The breast beam is a vital support for a loom.

BROKEN-END AND BROKEN-PICK: A warp end or filling pick that has become broken at some point in the weaving operation on the loom. Broken threads are fixed by the use of the weaver's knot, by twisting the two broken threads together, or by an ordinary knot. Threads that have become broken should be fixed at once, otherwise, the resulting cloth will be imperfect and classed as a "second."

BROKEN PATTERN: When the pattern or design has become broken because of some irregularity or error on the part of the designer or some operative. The woven pattern must be in strict accord with the original sample to produce required results and effects. Much broken pattern work occurs in weaving where the work of rectifying mistakes is not always done correctly.

BROKEN TWILL: This weave is made from a regular twill weave by running the twill in one direction for a desired number of threads and then reversing the direction of the twill from running to the right by causing it to run to the left, and by making as clear a break as possible at the "break" or "break-line."

A clear break in a weave is made by the placing of the raisers on the one thread opposite the sinkers of the adjoining thread; this is possible only in the case of certain even-sided twills. An example of this would be to have the sinkers of the first thread of the left hand twill come opposite the raisers of the last thread of the right hand twill at the break-line.

Incidentally, all herring-bones are broken twills, but all broken twills are not necessarily herring-bone weaves.

CAPE: The upright part of a loom. Any upright on the loom is known by this name; implies the breast beam, if the loom is of the upright type, as well as the slabstock and top castle capes.

CARDING: The process in yarn manufacture in which the fibers are brushed up, made more or less parallel, have considerable portions of foreign matter removed and are put into a manageable form known as silver. This approximates the size of a man's thumb in diameter.

Carding is done by means of rollers or flats that are clothed with fine, cylindrical, pressed steel wire called card clothing.

### CLOTH, THE PARTS OF A PIECE OF:

- FIBER: The smallest unit in a woven, knitted, braided or felt material. Fibers are also used to make felt material.
- 2. FILAMENT: A long fiber that may be indefinite in length.
- YARN: This is made up of twisted fibers or filaments and can have considerable strength and length.
- 4. PLY YARN: Two or more yarns that are twisted or plied together.
- 5. CLOTH: This is made from yarn in three ways:
  - A. Woven cloth is made from two systems of yarn or thread which interlace at right angles to each other; serge, homespun, damask.
  - B. Knitted cloth is made from one system of thread or yarn which interloops, a loop within a loop; hosiery, jersey, sweater fabric.
  - C. Braided or plaited material is made from an interlacing of one yarn only. The yarn may be made to interlace at any angle; lace, veiling, shoe lace.

Felt is not made from yarn; it is made from a mass of fibers that are interlocked and made into a material by means of heat, pressure, moisture, pounding and rolling, hot water, etc.

6. THREAD: It is used in sewing materials and is a ply yarn of some special nature. This ply thread is given a high number of turns of twist per inch. It is often waxed, coated or treated in some way for a particular use in order to work smoothly and well. Ply yarn, such as automobile tire fabric, may have a ply of 9, 10 or 11.

CLOTH BEAM: The roll at the front of the loom around which the woven fabric is wound.

COMBING: An advanced form of carding. Combing separates the long, choice, desirable fibers of the same length from the short, immature, undesirable stock that is called noil. Combing practically removes all remaining foreign matter from the fiber stock. Only the better grades of cotton, wool and other major fibers may be combed. Combed yarns are always superior to carded yarns.

CONE: 1. The bobbin upon which yarn is wound prior to weaving.

- A package of yarn wound into a suitable or convenient shape.
- 3. A tapered cylinder of cardboard, metal or wood around which yarn is wound.

- COP: 1. A paper tube upon which thread or yarn is wound.
- Thread or twine wound into the shape of a hollow cylinder.
- 3. Filling yarn wound upon a cone-shaped paper tube, carried through the warp shed by the shuttle.

COUNT OF CLOTH: The number of ends and picks per inch in a woven fabric as counted by an individual. If a cloth is  $64 \times 60$ , it means that there are 64 ends and 60 picks per inch in the fabric. A cloth that has the same number of ends and picks per inch in woven goods is called a square cloth —  $64 \times 64$ . Pick count is the term that is synonymous with texture and counts of cloth, in speaking of cloth construction.

CREEL: Device used as a spool rack for winding warp. Also used to hold warp ends for a sectional beam.

CROSS: The crossing-in of threads of either or both ends of the warp. This arrangement holds the warp threads in place and prevents gnarling, tangling and winding.

CUT LISTING, CUT SELVAGE: A listing or selvage that has been cut during the shearing or damaged by the weaver and allowed to go for some distance in the cloth without being remedied. Weavers should fix broken or cut selvage ends at once.

DENT: The space between the vertical bars of the reed through which the warp ends are drawn. The reed size is noted by the number of dents or splits to the inch.

DISTAFF: This staff, from which wool or flax was drawn in the early days of spinning and was manipulated with the spindle, was in use until the seventeenth century. The first distaffs were fashioned like a forked twig. A cleft in the staff held the mass of carded fibers conveniently while the spinner drew out the tufts for twisting between the thumb and finger and wound the strands on the rotating spindle.

The spinning or Saxony wheel superseded the spindle and distaff method of spinning yarn.

DOBBY: Woven on a dobby loom. Includes material with small figures, such as dots and geometric designs; floral patterns woven in the fabric, including certain shirtings, huck towels, diaper cloth, certain dress goods, drapery and upholstery fabrics. Can be dyed, bleached, or yarn dyed in many colors. Dobby designs may be used in cottons, rayons, silks.

DOG: The catch that fits into the teeth of the ratchet to keep the beam from turning while weaving.

DOUBLE PICKS: Defect caused by two picks having worked into the same warp shed in the weaving of the cloth, thus making a sort of ribeffect in the filling direction. The defect is quickly seen when the goods are perched. Double picks often occur when the weaver starts up the loom after fixing some blemish or changing shuttles. Carelessness on the part of the operator causes most of the double picks found in woven cloth.

DRAFT: The directions for weaving, usually plotted on cross-section or design paper to give the correct threading plan to be used in drawing the ends through the heddle eyes of the respective heddles.

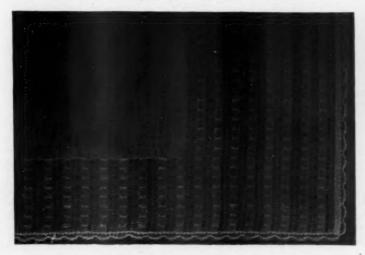
DRAWING-IN: The process of actually threading the warp ends through the correct heddle eyes. When these ends are drawn through the reed the procedure is known as reeding or reeding-in

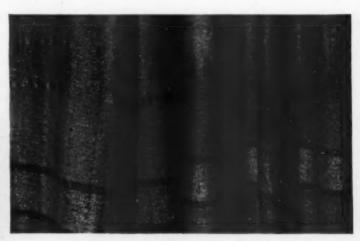
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Blanket samples such as the one shown here are made with various colors and 'sleyed' to make a variety of textures. The background piece shown was threaded in three different sections across the loom and then woven "as drawn in." This made nine entirely different samples. Warp used was 40/2 Irish Linen. Red, Gold, Bleach and Black and 8/1 Bleach Slub Linen. The same materials were used for the weft by Roberta L. Pearson, Forest Hills, New York.

Handwoven mat of 50/2 Bleach Irish Linen, using Leno Gauze, Danish Medallion techniques, finished with Brooks Bobbin lace, woven by Mrs. Margaret Brooks, Darien, Connecticut.





Drapery: "Scintillating Rhythm" Warp; Cream Linen Weft. Raw Silk French Plene metal, Celeophane in lemon yellow, peach, blue, designed by Stella G. Minick.

DRESSING: The process of winding yarn on the warp beam. The various colored yarns are set up in the creel and the pattern is "picked." This is according to the design given to the dresser by the mill designer. The yarn is run off the various spools which have the various colored yarns on them and wound onto the dressing frame. The warp is made up in sections on the dressing frames, and as many yards as desired are run off to make the first section; the other sections will have the same yardage.

END: A warp yarn or thread that runs lengthwise or vertically in cloth. Ends interlace at right angles with filling yarn to make woven fabric.

EYE: The opening or eyelet in the middle of the heddle. Sometimes called a mail.

FABRIC COUNT: The number of warp ends and filling picks per inch in woven fabric; also called texture, thread count, pick count.

FILLING: 1. An individual yarn which interlaces with warp yarn at right angles in weaving fabric. Also known as pick or filling pick. Filling usually has less twist compared with warp yarn.

2. Weft, the English term for filling, is used in this country in the carpet trade. This term, at times, is rather misleading and is sometimes confused with woof, the English term for warp.

FINGERING YARN: A worsted knitting yarn in which the lower qualities are not combed, the noil being allowed to remain so as to give fullness to the thread. In many world centers for hand knitting the term fingering is considered synonymous with worsted yarn.

The origin of the term may be derived from the hand spinning days to imply a process of passing the yarn through the fingers to obtain a straighter run of the fibers. Hand knitting and finger knitting are synonymous in British Isles.

FLY SHUTTLE: A device by which the shuttle on a hand loom is thrown through the shed of the loom by pulling a cord. Invention of John Kay in early 17th Century.

FRAME: The metal or wooden frame upon which heddles are placed or strung. Also called Harness Frame.

GATING: Adjusting loom so that all harness are at right height and proper angle. Also spelled Gaiting.

GERMANTOWN: A coarse, four-ply worsted knitting yarn with a slack twist. Term must not be used except to describe yarns made in Germantown, Pennsylvania.



GHIORDES KNOT: In Oriental rugs the ends of the hand knotted pile alternate with every two threads of the warp. This produces fewer knots per inch than Senna knotting which shows a complete loop formed by the yarn to give a pile effect from every space be-tween the warp threads. Senna construction gives a denser, thicker and evener pile effect on rugs than the Ghiordian knot.

HAND, HANDLE: The reaction of the sense of touch when fabrics are held in the hand. There are many factors which give "character or individuality" to a material observed through handling. A correct judgment may thus be made concerning its capabilities in content, working properties, drapability, feel, elasticity, fineness and softness, launderability, etc.

The term was originally applied to silk fila-ments, but the importance of a good handle to textiles has caused the term to take on more importance in other phases of this far-reaching in-

HAND WOVEN, HAND LOOMED: Fabrics produced on a hand or a hand-and-foot-power loom. Most hand woven fabrics are admired because they seem to express the individuality and imagination of the weaver.

HARNESS: The frame upon which the heddles used in weaving cloth are placed. Warp ends are drawn through the heddle eyes. Harnesses have an up-and-down movement in the loom which causes all the warp ends on the harnesses' frames that are raised, to be up, and those that are lowered harnesses, to be down. This action causes the formation of the shed of the loom to make the weaving of cloth possible.

Harness frames are controlled in the machine so that, by their action, the designs in woven cloth are possible.

HARNESS SKIPS: Breaks in the weave or the failure of harnesses to work properly. Skips are often caused by harness straps that slip, snap or break and work out of the plane and place provided for them. Skips form floats on either the face or the back of the goods.

HEADING: The beginning and the end of a piece of woven fabric, irrespective of length.

HEDDLE GAUGE: An implement used to make string heddles.

HEDDLE HOOK, DRAWING-IN HOOK: A wire hook used to draw the warp threads through heddle eyes of the heddles.

HEDDLE STICKS: Flat piece of wood used to hold string heddles, one at the top and one at the bottom of each set of heddles. Also known as Harness Bars.

HOMESPUN: Originally an undyed woolen cloth spun into yarn and woven in the home with the rather crude machinery used by the peasants and country folk the world over. The industry came to the fore in the British Isles and then spread to the Continent. Owing to the substantial appearance and serviceable qualities homespun is woven to great extent on power looms today. Genuine homespun cloth supply is very limited, and much power loom cloth is sold as genuine homespun.
The term is much abused and the gullible buying public often is fooled when buying the cloth as some particular quality. The cloth should always be made on a plain weave. Coarse, rugged yarn is used and quality varies much. The material is coarse, rugged and an ideal rough-and-ready type of cloth. All types and kinds of stock from the highest to the lowest go into the cloth in its wide range.

HORSES: The small levers that allow the harnesses to balance against each other. They are pieces of wood suspended from the top roller to which the harnesses are tied.

JACQUARD: A celebrated method invented by Joseph Marie Jacquard of Lyons, France, at the beginning of the 19th century, and so named for producing elaborate cloth weaves in the loom by the substitution for the ordinary and restricted number of heddle frames and pattern chains, of perforated strips of cardboard punched according to intricate design. These perforations, in connection with rods and cords, regulate the raising of stationary warp thread mechanisms. The Jacquard motion revolutionized the weaving industry and while of limited importance in the fabrication of men's wear, it plays a very prominent part in modern tapestry, brocade, brocatelle, damask and figured dress-goods production.

Jacquard patterns are found in all the major textile fiber fabrics. Cotton and linen Jacquard designs are much used in table cloths and napkins.

KINK: A place in a yarn where it has doubled back on itself and twisted in the manner of a ply yarn. Usually caused by extra twist.

LAMS: The horizontal bars or levers which extend between the harnesses and treadles to which they are attached by cords or chains. Lams allow the harnesses to be pulled directly down from the center, although the pedal to which they are attached, may be far to the right or to the left of the exact center. This, incidentally, makes for a clear, clean shed.

LEASE: The same as the cross in the warp. Keeps the warp ends under control at all times. LEASE PEGS: The pegs on a warping frame between which the lease or cross is mad

LEASE RODS: The wooden or glass rods or bars used to hold the "cross of the threads" in place while the loom is being set-up and threaded. lease rods are set in the loom when the piece is to be woven and they are set between the whip roll and the harness frames.

LEASE STICKS: See Lease Rods.

LEVERS: Bars on table looms which pull up the harnesses to make the shed of the loom — the opening between the "up" and the "down" warp threads or ends.

LISTING OR SELVAGE: Taken from the words, self-edge. Selvage is the series of ends found on the edges of woven cloth. These ends are part of the warp and run in the vertical direction in the

The primary function of the selvage is to hold out the warp so that the shuttle with the filling does not pull in the warp in width, thereby causing poor loom action. Another function is to allow the dyer of the cloth a hold on the edges for clips and pins, so that they do not tear the body of the goods. The selvage keeps the edges of the cloth parallel and straight, It is distin-guished from body of the cloth in following ways:

1. By the use of a weave that is different from

the body of the warp.

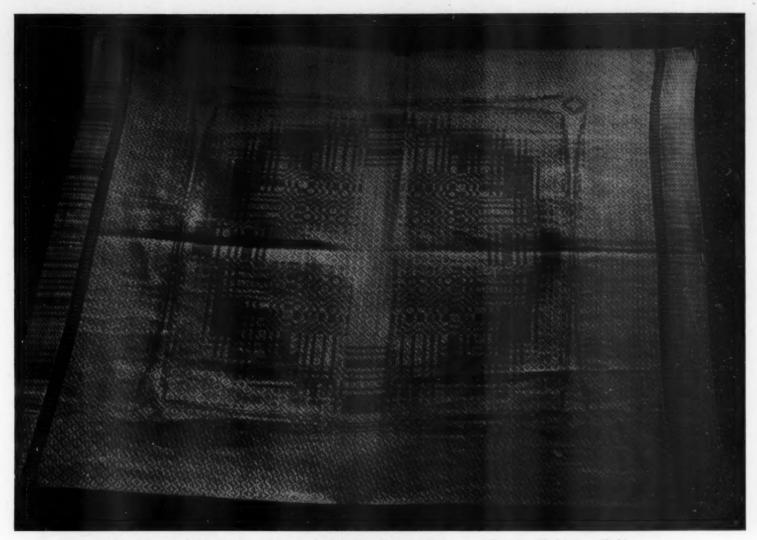
2. By the use of colored ends different from those of the warp.

3. By increased twist in the selvage ends.

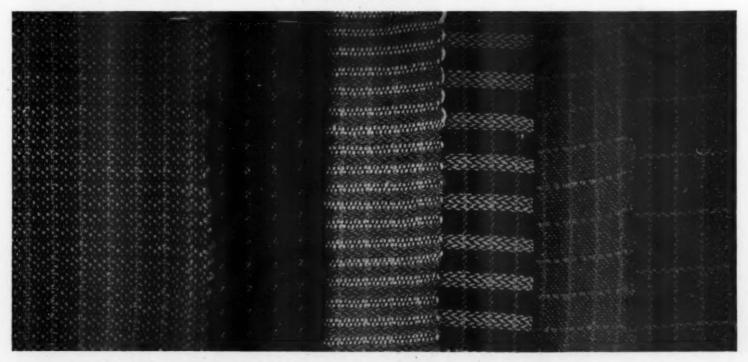
4. By the doubling up of the ends that constitute the selvage. This is done by placing two ends through each heddle eye instead of the customary single end. This will give the selvage sufficient strength to withstand and offset the friction that the filling might give as it comes off the nose of the bobbin. The doubled ends give a firmer feel and substance to the edges of the cloth. Listing may or may not be cut from the cloth

in the cutting-up house. Cottons often have the listing cut off prior to manipulation of the cloth into a garment. Woolens, worsteds and rayons retain the selvage, which is placed underneath and covered up in the cut, fit and trim of the garment. It is found along the seams on the under side of the finished garment. Selvedge is another way to spell selvage.

LOOM: A frame or machine used for the interlacing of at least two systems of yarns which cross one another at right angles. Some fabrics



Original Design, designed and executed by the late Mrs. Margaret Bergman of Poulsbo, Washington. Highly mercerized linen was used for the warp and weft. 24 carat coin spun gold was used for the weft. A 20 harness loom was used.



Upholstery fabric all made on same warp (brown cotton and tan rayon — boucle spin) and with same threading, variation of treadling. Designed and executed by Lili Brendneau, Cooper Union and Teachers College of Columbia University, New York.



ARCHAIC GREEK



ITALIAN



AMERICAN



PERSIAN

Let no weaver or designer ever forget that the artists and craftsmen of all the nations of the world have in every epoch made their own unique contribution to the development of the contemporary fabric picture.



FRENCH



PERUVIAN



MODERN GREEK

are made of 2 or more warps and 2 or more fillings.

Weaving action is done by having a set of yarns or threads which run in the vertical or lengthwise direction; these threads, according to some pre-determined plan, repeat, design or motif actually interlace with the other system of yarn which runs in horizontal or cross-wise direction.

Warp yarn, for hand weaving or power weaving, is wound on a warp beam which sets in the back of the loom. The yarn passes over a whip roll, over and under the lease rods and then through the correct heddle eyes of the respective heddles; it is then drawn through the splits or dents of the reed.

Filling yarn is shot through the shed of the loom by means of the shuttle; it is set into its component place in the cloth by being beaten into place by reed which has to-and-fro action.

into place by reed which has to-and-fro action.

Woven fabric, as it is produced, is wound around the cloth roller after being led over the breast beam, the area where the weaver works.

The three chief actions of all looms — hand or power — are shedding, picking and beating-up.

The word loom is often prefixed by the type of the material being woven — dobby, duck, plain, rayon, ribbon, etc.

LOOM AND WEAVING: A loom is a machine, hand or power driven, necessary to weave cloth. It consists essentially of parts that make it possible to have two systems of thread or yarn, called warp and filling, weave or interlace at right angles to each other. The earliest looms of which we have knowledge provided a means of hanging one set of threads in a vertical position through which the crossing threads were interlaced. Apparently, the first improvement consisted of a means to tighten these threads, either by hanging weights at the bottom end or by joining their two ends in such a way so as to form a loop over horizontal, parallel bars.

The following terms used in weaving parlance are synonomous:

Warp and end — the vertical or lengthwise yarns in woven cloth.
 Filling and pick — the horizontal or cross-

Filling and pick — the horizontal or cros wise yarns in woven cloth.

Horizontal looms were used by the early Egyptians and other civilizations in early world history. In the simplest form, this type of loom provided for the tethering of a bar that carried the lengthwise warp ends to a stake in the ground. A bar at the farther end was secured to the person of the weaver, who had a straight set of warp

threads through which it was possible to cross or interlace the filling yarns.

Primitive weavers improvised from simple materials a plain device or arrangement called a heddle or heald. This device enabled the alternate warp threads to be raised. Thus a shed was formed—an opening between the raised and un-raised or lowered threads or groups, through which the crossing or filling picks could be more easily

At an uncertain date prior to the Middle Ages, some tribes, in what is now Great Britain, improved the apparatus by adding a frame — a warp beam. This beam was used to hold the warp ends and another beam was installed to take care of the woven cloth as it came from the loom — the cloth beam or roller.

The filling or pick that was originally conveyed across in the form of a ball, or wrapped around a twig, was now placed in a spool. This was torpedo or boat-shaped and today is known as a shuttle. The spindle upon which the filling was wound fitted into the shuttle.

The power loom of today is substantially the hand loom adapted to rotary driving. The frame is iron instead of wood; the sley or oscillating frame is pivoted below and driven by a crank; and the picking arm is actuated by a cone that turns on a vertical rod. The lift of the heddle shafts or harnesses is controlled by tappets or came.

The motions are timed accurately in order to give a high rate of speed and production. The weaver, free from supplying power, has merely to apply the filling threads, sometimes known as weft, to the shuttle. He must watch for warp yarn breakage and for blemishes and defects in the weaving of the cloth. He must also be able to care for several looms, depending on the type and nature of the work being performed.

From time to time various improvements have been added. There are warp drop wires that cause the loom to stop or knock-off as soon as an end happens to break. Feeler wires that are set in the race-plate of the loom cause the loom to knock off if the pick does not go all the way through the shed. There are automatic let-offs for the warp as the cloth is woven, and take-off motions for the warp beam and the cloth roller respectively.

The major types of looms in use today:

1. AUTOMATIC LOOM: Built for simple or plain weaving of cloth with the addition of an

automatic shuttle device to change the filling as it runs out. This type of loom makes for production. The machine does not stop while the new filling bobbin is set in to replace the one that has just run out. With suitable organization of labor, one weaver may take care of several of these looms. He may care for as many as 48 or more looms at one time.

2. LOOMS FOR FANCY WEAVING: Have parts that are in addition to those found on plain looms. Stripes of color are arranged for in the warping, but the crossing stripes to form checks and plaids are put into the cloth by the filling bobbin in the shuttle. These looms are made so that they may carry several shuttles, as many as seven if necessary. There must be as many shuttles as there are colors of filling to be used in the cloth design. The shuttles are placed in boxes at the end of the sley or warp, and the mechanism provides that the particular box shall be in position at the instant or exact time required. These looms can be used in weaving plain gingham.

3. DOBBY LOOMS: Weave fancy materials. Dobby looms are built so that they can take care of many harnesses. Some looms have from 24 to 32 frames in them. The particular heddles on some one harness can be lifted at a given moment by means of metal projections that engage the holes in strips or bars of metal plates that are successively present in endless chain form. This is called the draft chain or pattern chain.

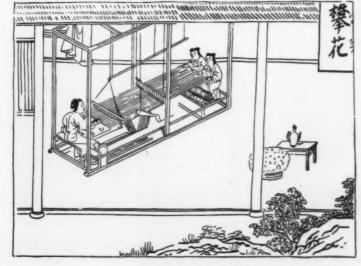
Small, fancy, and geometrical or symmetrical figures or designs may be woven on this type of loom which may be said to be a modification of the most marvelous of all, the Jacquard loom.

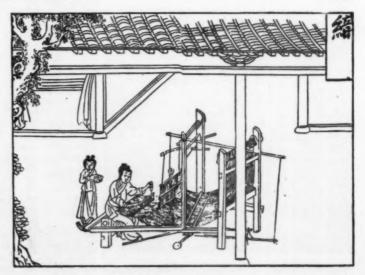
4. JACQUARD LOOM: Provides for the lifting or raising of individual warp ends without reference to adjacent warp threads. The loom is a development of the ordinary power loom. In the Jacquard head motion there are perforated cards and the needles of the cylinder in this head stock select the required warp end or group of ends. They raise these ends, which are lifted by means of hooks and form the top part of the shed of the warp in order to admit the passage of the filling pick through the opening formed.

5. OTHER TYPES OF LOOMS FOR SPECIAL WORK: Some outstanding types are:

 LENO OR DOUPE LOOM: Weaves cloth in such a way that certain warp threads "twist or cross half way around or over other warp ends."

(more)





Centuries ago in ancient China . . . Modern American hand-loom weaving is not essentially different.

There are two sets of harnesses used, standard and skeleton. This loom is used for marquisette, curtains, draperies, novelty, and fancy perforated effects in cloth.

- 2. LAPPET LOOM: Uses an extra warp to produce small fancy effects in cloth. There is a base warp, and a lappet warp takes care of plac-ing the figured design in the material. Few of these looms are now in use.
- 3. SWIVEL OR CLIP-SPOT LOOM: Makes small designs or effects on cloth by means of an extra filling or swivel. The results are the same as those noted on a lappet loom. Few of these looms are now in use.
- 4. PILE FABRIC LOOM: Material from this type of loom is made with an extra set or sets of yarns that are looped on the face of the cloth. The fabric may be cut or uncut to give the pile effect. Cutting or looping is done by means of rods which, if they are tipped at the one end with a blade, will give a cut pile effect; if there is no blade at the one end of the wire, the material will become an uncut pile fabric. Plushes of all types are made on these looms.

LOOM BEAM: A beam to hold warp yarn. In weaving, it is located at the back of the loom, and from it the ends slowly unwind. Usually there is one beam to a loom, but sometimes there may be two, three or more.

LOOM FIGURED: Fabrics which have the design woven in during weaving in contradistinction to printed, embroidered or appliqued patterns on textile materials.

LOOM FINISHED: Material sold in the same condition as the goods came from the loom

LOOM SMASH: This occurs when a large number of warp ends become broken in the weaving of fabric; may be caused by loops, knots, poor tensions, unpolished shuttles, when two shuttles come together in the shed, etc.

### LOOM, HARNESSES AND HEDDLES ON:

- 1. REGULAR HARNESSES: A type which controls a definite system of threads and is limited in scope.
- 2. JACOUARD HARNESSES: A combination of thread control which is not limited in scope. The average type of harness is as follows: a frame usually made of wood, consisting of two, small, flat pressed steel bars that extend the width of the harness frame, Harness frames, upright in the loom, are kept in place at the top and bottom

by means of straps attached to the jack in the head motion of the loom. Heddles are added to, or taken from, the harness frame by taking out the cotter pins on the one end of the frame and loosening the nuts on

the other end. This allows the bars to slide back and forth, the matter of adding or taking away heddles is simple. The heddles easily fit onto the bars in the frame by means of the top and bot-

tom hook loops. All ends that weave alike usually go on the same harness. An end, with the exception of intricate doupe weaving, usually goes through one heddle eye only.

MISPICK, MIS-PICK: An imperfection in the filling direction of woven cloth caused by broken filling, bobbin running out of filling in the shed, yarn catching, snapping or gnarling. Mispicks must be fixed in finishing department of the mill.

MIXED FILLING: When a bobbin of the wrong size or color has been woven into the material by mistake. This error may be laid to sheer carelessness or oversight by the weavers. Picking-out of the spoiled area causes the weaver to lose much time and production.

NAPPING: Cloth, by the time it is ready for napping, is unattractive and irregular in appearance. The surface is uneven and shaggy because of protruding fibers.

Nap on the face of cloth may be raised for several reasons: to make the cloth give more warmth to the wearer, to give it more body and make the material more compact, to make the fabric softer or smoother in feel, for durability, to help cover up the spaces between the interlacings of the yarns, and to add to the selling points of the garment.

Minor defects and blemishes are covered up by napping. It is an easy matter to bring coarse, inferior cloth to the point where it will be appealing to the eye of the prospective purchaser. It may also have the tendency to make the layman believe that the cloth is better than it really is. Looks and appearance are influenced in material selection, and the wearing quality is often overlooked. Napping will sometimes "make" a fabric.

Napping, gigging or raising is accomplished by passing the cloth, in a tightly stretched condition, over a revolving cylinder or roller, inlaid with teasels. The roller may be clothed with card clothing instead of the teasels. If wire is used, the length of it is from seven-eighths to one and one-eighth inches, set in leather fillet.

OVER SHOT: Threads, as in pattern weaving, which skip over or float over several warp threads at a time, thereby making a long thread float over the other system of yarns.

PERSIAN KNOT: Sometimes known as the Senna Knot, it is one of the two knots used to tie-in the pile effects in Oriental rugs. A loop is formed around the warp end and is made fast by being pulled into place so that the pile will be spaces between all warp threads. See Ghiordes Knot.

PICK: A filling thread or yarn that runs crosswise or horizontally in the woven goods.

PICK-AND-PICK: The throwing of single picks of different colors through the shed of the loom

PICK FINDING: The process of letting-up or turning-back the warp in the loom and picking out the few picks that have been woven after a mispick or some other blemish has occurred. After the mispick has been remedied, the warp is made taut, and the loom is ready for setting and continued weaving.

PICK GLASS: A magnifying glass used to examine fabrics and to count the texture in warp and filling in woven goods. Comes in varying sizes and known as linen tester and pick counter.

PICKER: The leather-covered wooden piece which catches the point of the fly shuttle throws it across the lower part of the shed to the picker at the other end of the loom. The shut-tle actually passes through the shed — the space between the raised and the lowered warp-end sections

PICKER STRAP: The strap or cord fastened to the picker.

PIRN: 1. Scotch term for a small spindle.

2. A wooden bobbin which sets into the shuttle. It has a chase, nose or tapering tip, like a cop, which enables the yarn to come off or unwind easily.

3. The bobbin on a spinning wheel.

4. A British term rarely used here meaning a paper tube used on a shuttle spindle.

PLAIN WEAVE: The simplest, most important and most used of all of the hundreds of weaves possible to be used in making textile cloths. Eighty per cent of all cloth made each year is made on this simple construction. There is only one plain weave, and it gives a checkerboard appearance. It is made, and repeats, on two warp ends and two filling picks, and is read as "one-up and one-down." There are one raiser and one sinker, painted and unpainted block, on each warp thread in the repeat of the weave.

PLY: The number of strands or yarns twisted together to form a ply yarn or thread such as a two-ply, three-ply, etc.

POWER LOOM: A loom that is run by other than hand power. It is the advanced, modern, scientific type of hand loom and has all the modern improvements for production.

QUILL: The tube for winding weft or filling yarn for a boat shuttle. Another name for bobbin in some circles.

QUILLER: 1. The machine used in quilling filling yarns. It consists of two main sections, the quilling machine proper being a substantial framework holding a series of spindle rails, usually nine in number, arranged in tiers, with 40 to 50 spindles in each tier. The other part consists merely of tension rolls by which the yarn is held before passing to the quilling machine

proper.
2. A machine for winding yarns of rayon, silk,

etc. on quills.

QUILLING: 1. The last process in the long-chain system for filling yarns, in which the threads forming the chain are wound on filling bobbins. or quills, ready for the shuttle.

Winding filling yarn, especially of rayon or

silk, on to quills.

3. A strip of lace, ribbon or the like, fluted or folded, so as somewhat to resemble a row of

RACE: The front ridge of the beater on which the warp threads rest in order to facilitate the passing of the shuttle.

RADDLE: A device for spreading the warp threads evenly as they are wound onto the beam. This is used when the loom is warped from the back to the front.

RATCHET: A wheel with a toothed edge fastened to the end of either a cloth beam or a warp beam to control the winding action.

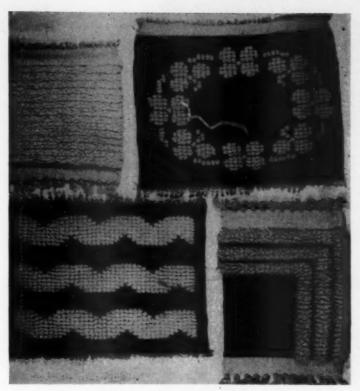
REED: The comb-like device through which the warp ends are drawn after leaving the harnesses and heddles. The reed prevents the warp ends from tangling or snarling. It keeps the ends under control at all times.

The reed beats the loose filling pick lying in the shed of the loom into its proper place in woven fabric. The reed is parallel to the whip roll.

A Number 12 reed, for example, means that there are 12 splits or dents to the inch in the

REED HOOK: The hook used to draw threads through the reed when reeding-in the warp

REED MARKS: Actual streaks or marks seen in the warp direction of cloth and found in all



Texture studies by Juul-Hansen.

### SUGGESTED ARTICLES TO BE WOVEN

Rugs and bath mats
Wall hangings
Book covers and
book marks
Clothing material for
suits, smocks
Collar and cuff sets
Belts
Watch bands
Bags and purses
Scarves

Head kerchiefs
Aprons
Traveling kits
Towel
Table scarf or runner
Lunch cloth
Place mats and napkins
Pillow top
Foot stool cover
Upholstery material
Curtains and draperies

Blankets and robes
(auto robes)
Bed spreads and
counterpanes
Screen panels
Lamp shades
Caps
Mufflers
Men's neckties
Tea caddies
Fabric slippers



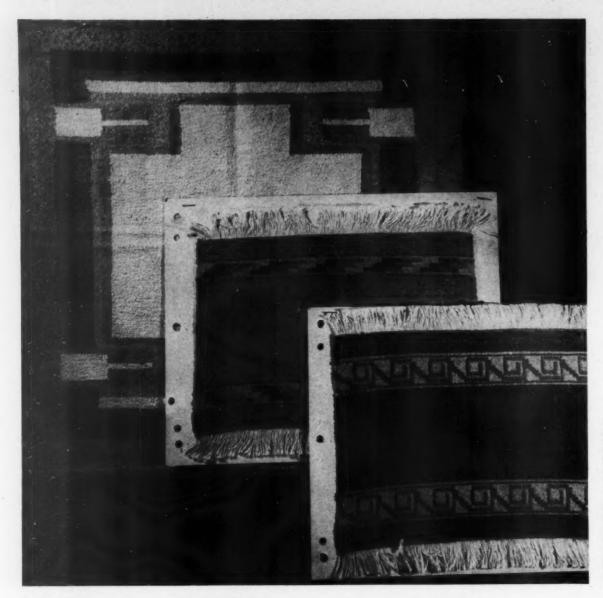
Example of modern tapestry done on a linen warp and using brilliant wool, silk and metal wefts. Shows versatility of weaver Lillian Holmes.



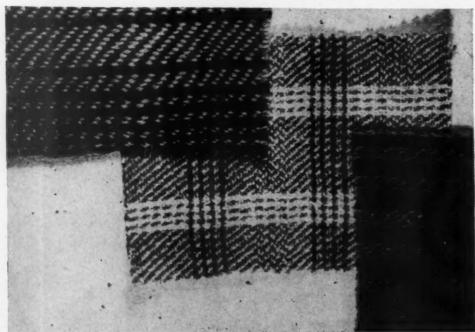
Child's dress for a two year old: all pure Irish linen dress in Jasmine Yellow, with trim in pastel colors. McCall's pattern. Linen and wool coat for a two year old: warp Forget-me-not Blue linen 20/2, weft: 2/18 Forget-me-not Blue Weaving Wool. Threading draft: variation of the Honey-suckle pattern to produce a textured surface. McCall Pattern used for coat. Woven by Steleen Studios, N. Y.



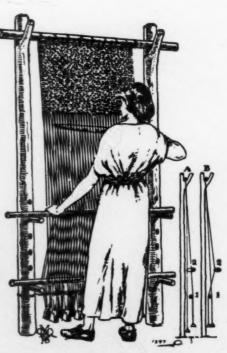
Hand woven screen and table lamp, of pure linen. Frances Siminoff Cohn, Berkeley, Calif.



Top, Tapestry Square, Warp 20/2 cotton, Weft novelty cotton yarn; cream light blue, tan, greyed yellow, dk. brown. Center, Tapestry Weave, Warp 20/2 cotton, weft, velveen, rayon, linen; gold brown, yellow, orange, tan. Bottom, Warp 20/2 cotton, Weft velveen, rayon, linen; Swedish weave; medium brown rayon, orange figure by Hazel Walters, Cincinnati, Ohio.



Designed and Woven by: Elizabeth Frank — New York City. 1. Cashmere Wool — Peach, black, off white, turquoise blue for warp. Weft, warm medium grey. Threading twill. Off-set. Tramp as writ. 2. Large Plaid — natural grey and white wool. Warp, white and nat. grey. Weft, same. Cashmere Threaded; twill and herringbone. Excellent material for suiting. 3. Heavy Wool Coating, Warp, dk. blue and light grey. Weft, same dk. blue and medium grey. Threaded twill and off-set twill.



Warp-weighted loom of pre-historic typc

woven goods, but more particularly in lightweight cottons, some silks, and certain rayon fabrics. Reed marks may be caused by the following: wornout reed, loose reed wires, bent wires of the reed, wrong draws, incorrect reeding, and warp which may be given too much tension on the loom. Reed marks may be obliterated in finishing of the material.

REEDING: Drawing the warp yarns through the reed splits of the reed. Sometimes referred to as sleying.

REELING MACHINE: A machine used to draw yarn from many bobbins, cones, or cops, mounted on spindles onto a revolving reel to form skeins.

REPEAT: 1. An entire completed pattern for design and texture. Repeats vary in size considerably, depending on the weave, type of material, texture, and the use of the cloth.

2. The form which indicates the size of the weave and the number of threads that the weave contains in both the warp and filling. A weave may be repeated any reasonable number of times on paper.

ROLLING SELVAGE, ROLLING LISTING: Selvages that curl or roll up are often cut by the shearing machine in the finishing department. Rolling selvages are often caused by the edge selvage ends having too much tension or pull on them. The weaver should watch his edges closely in order to immediately fix any defect, no matter how slight. Automatic looms equipped with warp drop-wires will cause the loom to stop or knock-off if any end in the warp breaks, selvage ends included. Broken warp ends, in looms of this type, must be remedied before the loom will again begin to weave fabric.

Another cause of rolling selvage is heavy density in the reeding of the warp. If the density is too great it should be lessened to the point where the selvage ends are only slightly heavier than the body of the cloth. Narrow selvages will have the tendency to roll during and after finishing. Selvage of sufficient width should be provided each loom warp. See Selvage.

SECTIONAL WARP BEAM: One that is divided by pegs into two-inch sections; used in hand weaving set-up.

SELVAGE: The rather conspicuous edge of narrow listing on the edges or sides of cloth, which is part of the fabric and is not sewed on, to prevent raveling out of the woven threads in the goods. Also known as Listing, Selvedge, Self-edge.

SHED: This is the V-shaped opening slightly in back of the raceplate of the loom that is formed when some of the warp ends are raised and others are lowered by their respective harnesses. It is the opening through which the shuttle passes laying the loose pick. Forming the shed is the first action in weaving, followed by picking and lastly, beating, the actual beating of the pick into the cloth by means of the reed action.

SHED STICK: A long, narrow stick used to open up the threads in order to form the shed.

SHEDDING: The first of the three motions of a loom in weaving cloth. Picking and beating-up are the other two chief motions. Shedding is the raising and lowering of the warp ends by means of the harnesses and heddles to form the shed of the loom so that the filling bobbin in the shuttle may pass through it from one side of the loom to the other side. As the shuttle passes through the shed it lays the loose filling pick between the raised and the lowered warp ends.

SHUTTLE: The device which carries the filling yarn in its course through the shed of the loom

in weaving fabric. Power loom shuttles are made of dogwood or persimmon, properly aged. There is a metal tip at each end of a shuttle. The filling bobbin is set into the open space provided for it in the shuttle and there is an eyelet at one end so that the filling may unwind rapidly as it is shot through the shed from the shuttle box on the one side of the loom to the box on the other side of the machine. Worsted looms average about 125 picks per minute, that is, the shuttle flies back and forth that number of times per minute from box to box. This number may vary somewhat, dependent on fabric being made and other local conditions.

SHUTTLE AND BOBBIN: The device which holds the bobbin of filling. It passes through the warp shed which is formed by the raising and the lowering of the respective warp ends. The harnesses and heddles accomplish this raising and lowering of the warp ends.

The filling yarn is wound on a bobbin which sets in the shuttle. The yarn is unwound and left in the shed of the loom when the shuttle passes through this shed. The reed then beats the loose weft pick into its component place in material.

SHUTTLE BOXES: The containers on each side of the loom that receive the shuttle as it comes through the shed of the loom. Shuttles fit very snugly into the boxes. They are forced and thrown from the boxes by the picker stick, which is located at the end of the lay of the loom. Lug straps and rocker arms aid the picker stick in its action.

Cotton, silk, woolen and worsted looms, in power weaving, are made with a single box, that is, one box on each side, also a 2-to-1 box plan (two boxes on one side, one on the other side); likewise, on a 4-to-1 plan, and a 4-and-4 plan, known as a pick-and-pick loom, as well as a 6-to-1 arrangement. In the 2-to-1, 4-to-1 and the 6-to-1 plans the filling is inserted in multiples of two. In the pick-and-pick plan, 4 by 4, the filling can be inserted 1-to-1 as to arrangement and seven different colors or shades can be used.

SHUTTLE MARKS: When a shuttle, prior to its work in the loom, takes on oil, grease or other detrimental matter, the effects are almost certain to be seen in the woven gray cloth. These marks, which give no little trouble in finishing cloth, are often caused by carelessness on the part of the weaver.

It is almost impossible to remove shuttle marks from cloth during finishing. Sometimes the blemish is caused by the filling being pressed against the binder and the resultant mark is squeezed into the fibers or filaments of filling yarn.

SHUTTLE TYPES: 1. Stick Shuttle: A flat stick on which the weft threads are wound. Also called Poke Shuttle.

2. Blanket Shuttle: A wide shuttle on which heavy west yarns are wound.

3. Boat Shuttle: A boat-shaped shuttle which can carry a bobbin. Also known as Throw Shuttle.
4. Fly Shuttle: Similar to the boat type but worked by pulling a cord. When used in true commercial sense this type of shuttle is automatic.

SINGLE WARP: In regard to yarns, per se, the warp threads in the cloth are single, as distinguished from two or more ply. In reference to fabric construction it is a single system of warp threads where there is, perhaps, a double system of filling threads.

SINGLE WOVEN FABRIC: This cloth is made with two sets of threads; one set, the threads which run vertically in the goods, is known as the warp; the other set, the threads which run horizontally in the material, is known as the filling. The terms, ends and warp, are considered as synonomous; picks and filling are likewise synonomous.

Selvage, selvedge or listing, the characteristic edge of the goods, always runs in the warp direction. This is naturally a part of the fabric and does not go to waste in tailoring. However, in dressmaking, it is sometimes cut off before the cloth is cut.

SKEIN: A hank or loosely coiled length of yarn.

SLABSTOCK: The back beam which corresponds to the breast beam in the front of the loom.

SLEYING: Drawing the warp through the dents or splits in the reed.

SNITCH KNOT: A type of knot used to tie the lams to the pedals.

SPOOL RACK: Merely a rack or frame which holds spools of yarn.

SPREADER: See Raddle.

SQUARE KNOT: A non-slipping knot used to tie-in heddles.

STRETCHER: See Temple.

SWIFT: An adjustable frame used to hold a skein of yarn while unwinding. There are two types — floor swift and table swift.

SWORDS: The two vertical side bars of the beater.

TABBY: Another name for the plain weave—the 1-up and 1-down weave. Also written as 1. There is only one tabby or plain weave.

TEMPLE: Set at the fell of the cloth, it keeps the newly woven material at the correct width so that the warp and the filling in the weaving will interlace at right angles to form perfect fabric. Also known as Templet, Stretcher and Tenter Hook.

TENSION: The "stretch" of the threads during weaving.

TEXTURE: The first meaning is the actual number of warp threads and filling picks, per inch, in any cloth that has been woven. It is written, say, 88 x 72. This means that there are 88 ends and 72 picks per inch in the fabric.

When texture is the same, such as 64 x 64, the cloth is classed as a "square" material.

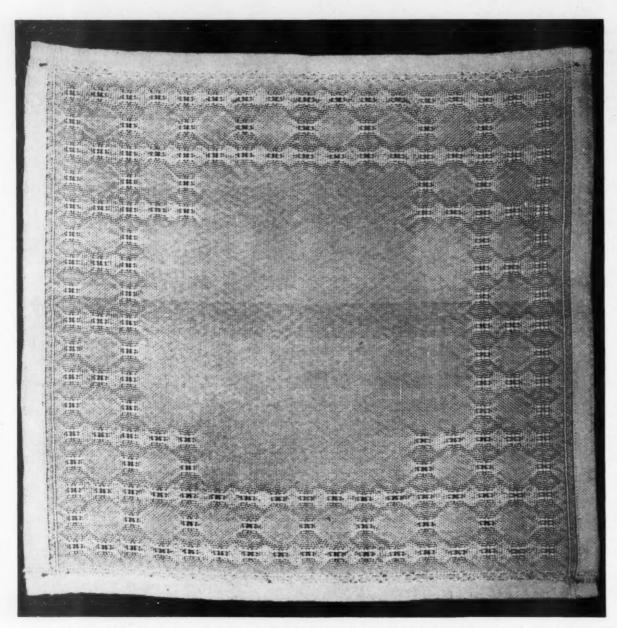
Sheeting, with regard to texture is often referred to, for example, as a Number 128, Number 140, etc. Consideration of the number 128, means that the total number of ends and picks per inch is 128. Thus, there might be in the texture 72 ends and 56 picks, or 68 ends and 60 picks, or 64 ends and 64 picks which is a square fabric texture. A 140 sheeting would be better than a 128 sheeting since there would be more ends and picks to the inch in the former.

and picks to the inch in the former.

Texture is also much used by the public and in advertising circles to mean the finish and appearance of cloth for sale over the counter or in the finished garment state. Some terms pertinent to texture when it has this meaning include:

Glossy Boardy Satin Satin-like Harsh Cashmere Cire or waxed Lustrous Semi-finish Sheared Clear Mercerized Silken-like Crepe Moire or Cropped Dull Watermarked Smooth Moss Soft Duplex Pebble Starched or sized Even Face-finish Plain Stiff Reversible Undressed-finish Glazed Uneven-finish Rough Unfinished-finish

(more)





STUDY IN DISTORTION: The accompanying photographs are of two articles from a series woven from nylon yarn. Capitalizing the quality of slipperiness inherent in the nylon the units were distributed in such manner that the resulting distortion would produce various desired effects. In the photograph at the left, with units arranged uniformly and intensively, the result was an all-over pattern. In the photograph at the right, a border was arranged. Similarly in other articles spot effects and flower motifs were produced. By Miss Mary Elizabeth Elder, Winchester, Massachusetts.



Drapery fabric, utilizing ordinary package string, by Hathorne Studios, Yorktown Heights, N. Y.

### METHODS OF FINISHING WOVEN PIECES

- 1. Overcasting (before taking off loom or afterwards)
- 2. Button-holing
- 3. Pairing at ends, usually on wool scarves
- 4. Hem
- 5. Machine stitched where fringe is left untied on pieces much laundered
- 6. Chain stitched woven in edge
- 7. Card woven edge warp ends for filling of card weaving
- 8. Fringes
  - a. Tied in a single knot or in several knots in diamond pattern
  - b. Added fringe
  - c. Solomon knot bar and other methods of using warp in a pattern d. Chain stitch

THREAD: A highly-twisted, specialized type of yarn with some particular finish so that it may be utilized for some definite purpose. Thread is stronger than yarn, is usually of two or more ply, and has proper twist to aid the operator or worker in manipulation with the needle, on hand or power machines. Thread, of course, has much usage by the finger manipulation of the individual. It is used for sewing, darning, mending, button hole making, embroidery work of many types, etc.

Threads vary as to quality, ply, twist, finish, sheen, luster, strength, etc.

TIE-UP: 1. The part of the draft which shows what combinations of harnesses are to be used

in the actual weaving.

2. That part of gaiting the loom which applies to the tying of the lams to the pedals.

TOP BEATER: The top bar of the beater which keeps the reed in place when the loom is in action.

TOP CASTLE: The top part of the loom from which the harnesses are hung.

TREADLES: The pedals at the bottom of the loom; operated by the foot.

TUBE: Another name for bobbin.

TWILL: The name is supposed to have originated from the Tweed River which separates Scotland from England. The term means to double and in this respect tweed was originally made by what is known as "doubling the plain weave" which was written as 1-up and 1-down. Tweed or twill weave is written as 2-up and 2-down or 2,

provided this is the weave to be used in the twill construction.

The twill effect is bias or diagonal on the face of the goods. In about eighty-percent of twill fabric, the twill line runs from the lower left-hand corner of the goods to the upper right-hand corner of the material. Left-hand twill runs from the upper left-hand corner of the fabric to the lower right-hand corner of the goods.

The terms twill, tweel and tweed are closely related. There are many varieties of twill weaves and twill-woven fabrics—right-hand, left-hand, broken, herringbone, twilled basket, steep twill, reclining twill, even and uneven, single and

reclining twill, even and uneven, single and double, braided, entwining, etc.

Some right-hand twill fabrics include cassimere, cavalry twill, covert, elastique, gabardine, serge, tricotine, tweed, whipcord, etc. Left-hand materials may include denim, gabardine, galatea, jean cloth, drill, middy twill, novelty effects,

ticking, etc.

Twills are used to great degree in textile fabrics which are strong, durable, dressy and wash well. Much used in dressgoods of many types.

TWILL OR SERGE WEAVE: A weave which repeats on three threads each way. This is the smallest twill that can be made—a two-up and one-down or a one-up and two-down weave.

The two-up and two-down twill construction is very popular in all major fiber fabrics, even more so than the smallest-weave construction. The number of possible twill formations is almost limitless. Twills are used in silk serge, foulard, crepe meteor, plaids, checks, serge, tweed, cheviot, shetland, and in combination with other weaves that are used in more or less elaborately designed fabrics.

WARP: 1. The yarns that run lengthwise in a woven fabric. Also called chain or twist. An individual thread of warp is termed an end.

The yarns that run generally lengthwise in a warp knit fabric.

The sheet of yarns laid together in parallel order on a beam to form a warp.

WARP BEAM, WARP ROLLER: A wooden beam onto which the warp ends are snugly wound. This is followed by drawing-in and reeding before setting the beam into the sockets located at the back of the loom.

By means of friction bands and weights the warp yarn is fed evenly into the loom while the cloth is being woven. These weights are removed from time to time in order to keep proper tension on the warp ends as the warp decreases in diameter and the winding-off requires less tension in the control of the warp. Too much weight would cause some ends to break and thus impede production.

WARP BEAM TAPES: Tapes or cords which may be used to take the place of the apron.

WARP CHAIN: The looped or chained warp that has been taken from the frame or reel. It is made like a crochet chain-stitch and prevents the warp from gnarling or tangling.

WARP END: An individual warp thread, yarn or end.

WARP THREAD GUIDE: See Raddle.

WARPING: The process of winding the warp onto the warp beam of the loom.

WARPING FRAME: A wooden frame with evenly spaced pegs on which small or short warps may be made.

WARPING MILL, WARPING REEL: A revolving frame on which long warp are made. See Dressing.

WEAVE: The process of forming a fabric on a loom by interlacing the warp and filling threads with each other. The fundamental weaves are Plain, Twill, Satin. All other weaves, no matter how intricate, employ one of these basic weaves in their composition. There are many variations on the basic principle which make different types of fabric surfaces and fabric strengths.

WEAVE ANALYSIS: The process of determining the way in which the ends and picks interlace in a fabric.

WEAVER'S BEAM: Same as Loom Beam.

WEAVERS KNOT: Much resorted to in tying knitting yarns. The knot is small and evenly distributed around the yarn. It will not slip nor untie. This knot may be omitted when threading a machine for the setting up of new work.

WEAVING: The interlacing at right angles of two systems of threads known as warp and filling. The former runs lengthwise and may go over or under the latter, which runs crosswise in the cloth.

In designing woven fabrics, the manner of interlacing may be varied to produce different effects. These effects are called weaves and may be represented on special squared designing paper by allowing the vertical lines to represent the warp and the horizontal lines to represent the filling threads. The actual weave is an arrangement of painted and unpainted blocks. The painted block is called a raiser or up-thread, and indicates that the warp thread is above the filling at the point of interlacing. The unpainted block is called a sinker or down-thread and indicates that the warp thread is beneath the filling thread.

WEB: The finished woven fabric is simetimes known by this term in hand weaving circles.

WEFT: Allied with the British term, woof. In this country there is much discussion of these two terms and they seem to be considered as more or less interchangeable. Both of them here may mean threads that run in the filling direction. One may imply a warp series of ends, while the other would specify the opposite system of yarns or threads. The terms are often resorted to in the advertising of textiles since they seem to give an English "quirk" which may attract the reader's attention. Other names for weft are pick and "pick-and-shot." In the carpet trade and in hand weaving, in this country, the terms weft is used instead of filling in most instances and is accepted in lieu of the American term. See Woof.

WEFT YARN: In the carpet trade cotton, jute or kraftcord yarn running crosswise of the fabric as binding and filling. It is inserted through the chain and over and under stuffer warp yarns with a shuttle in the wire weaves and with a needle thrust in axminster.

WOOF: Comes from the Anglo-Saxon "owef." It is another name for warp or warp yarn but sometimes, chiefly in advertising textiles, the word has been used to imply filling yarn and made to interchange with the other term, weft. It is apparently much safer to use the terms, warp and filling, in this country; in the carpet trade and in hand weaving, however, weft is used instead of the American term, filling.

WOOLEN YARN: A rather broad term, used extensively to denote that yarn made from wool fibers, possibly irregular in length, and, at times having fibers other than wool mixed with it. The fibers lay more or less in a topsy-turvy direction and are carded but not combed. Used in the sweater trade for coarse, heavy woolen hosiery, shaker sweaters, and in many types of woven innerwear and outerwear.

WORSTED YARN: Made from choice woolen stock that can be combed after carding. The fibers are specially treated — drawn, drafted, doubled and re-doubled in the machines. In the knitting trade, worsted yarn has great use in sweaters of varying types that are in demand from season to season.

WORSTEDS: Popular class of cloths made of choice woolen stock using fibers of approximately the same length in staple. The process of making worsted cloth originated in the little village of that name in Norfolk County, England. Today, the procedure of making worsted cloth has changed somewhat because of the improvement in up-to-the-minute modern machinery.

YARN: A twisted thread such as cotton, linen, wool, etc. All thread, incidentally, is made from yarn but yarn is not made from thread. Strictly speaking, yarn is a generic term for an assemblage of fibers or filaments, either natural or manufactured, twisted or laid together in order to form a continuous strand which can be used in weaving, knitting or otherwise made into a textile material.

### END OF PART II

PART III OF HANDLOOM WEAVING IN AMERICA appears in the following issue. Reprints of each part of Hand-Loom Weaving are available at \$1 each; \$3 per complete set. It will be appreciated if payment is enclosed with order. Mail to: American Fabrics, 350 5th Ave., New York 1, N. Y.



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# Bundling without Bungling

When knightly bundling was in flower and great-grandpa was in his bower, he often played heck with a sheet for he slept with spurs upon his feet. And when a nightmare made him twitch, the damsel really had to stitch. But both the sheets and great-grandma survived the calls of great-grandpa. Since boots and spurs are not in vogue and guest rooms are today the mode, your sheets must still stand rips and tears of laundries, kids, and derrières. But mending sheets is now passé; our whistle bait has a better way, and sheets don't face such knightly slaughter. A colonial dame's great-granddaughter selects our own FORT SUMTER sheets to spur beaux on to spurless feats.

Unlike old times when couples bundled and in the process

often bungled, we make our SPRINGMAIDS much the best and proved it in a strenuous test. We took our own FORT SUMTER brand, woven and finished by skillful hand. Each sheet was washed 400 times-a test like this would slick new dimes. Two hundred times they were abraded, yet none were either worn or faded. That's equal to a generation of wear and tear and vellication. And speaking of FORT SUMTER covers, we really wish all fabric lovers, when homeward bound from some dull party, would test SPRINGMAIDS—they're all so hardy that you can get a running start and dive in-they won't come apart. The moral is, to each of you: No matter what you say or do, remember that in cold or heat, you can't go wrong on a SPRINGMAID sheet.





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While they last, you can secure a copy by sending a dollar and postage to us. Unlike SPRINGMAID fabrics, satisfaction is not assured, and no money will be refunded.

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CYRIL JOHNSON WOOLEN COMPANY

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Photographed at The Cloisters, a branch of the Metropolitan Museum of Art

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